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- (S) New embodiments of the HIV principal neutralizing determinant.
- (5) New amino acid sequences of an envelope fragment of HIV are disclosed, as well as immunological conjugates for immunological purposes, including vaccination against AIDS.

Acquired Immune Deficiency Syndrome (AIDS) is the clinical manifestation of the apparent infection of CD4 helper T-cells and other cell targets by human immunodeficiency virus (HIV), also previously referred to as human T-lymphotropic virus type III (HTLV-III), Lymphoadenopathy-associated virus (LAV), or AIDS-related virus (ARV) (hereinafter collectively "HIV"). AIDS is a transmissible deficiency of cellular immunity characterized by opportunistic infections and certain malignancies. A similar disease, AIDS-related complex (ARC), shares many of the epidemiological features and immune abnormalities with AIDS, and often precedes the clinical manifestations of AIDS.

A vaccine against AIDS and/or ARC is an ideal prophylactic treatment for preventing the delibilitating effects of infection by HIV. Applicants have discovered new immunogens useful for such a vaccine. The immunogens are new principal neutralizing determinants (PNDs) of HIV.

Many of the details of the genetic function and virion structure of HIV have not yet been elucidated. However, certain general features have emerged. An RNA virus with a genome totaling about 9 kilobases (kb), its nucleotide sequence contains seven major open reading frames (ORFs) corresponding to the gag, pol and env, vif, tat, rev, and nef genes. The genes gag, pol and env code respectively for core subunits, viral enzymes such as reverse transcriptase or protease, and outer surface subunits. The gene vif codes for a viral infectivity factor, which is a protein involved with enhancement of cell-to-cell transmission of virions without affecting the budding process. The gene tat codes for a small protein that transactivates the expression of all viral proteins. The gene rev regulates expression of the viral proteins of gag, pol and env genes, possibly by facilitating transport of incompletely spliced RNA. The nef gene codes for a viral protein found in the cell cytoplasm, and it may modulate the host cellular signaling system and serve as a transciptional silencer. Terminal repeats in the nucleotide sequence are common to many retroviruses such as HIV and are required for viral replication and integration into the host chromosome. More recent discussions on the general nature of HIV genomic structure, replication and regulation are found in Ratner, L. et al. "Human T-Lymphotropic Retroviruses," in O'Brien, S.J. (ed.) Genetic Maps 1987 Cold Spring Harbor 1987 pp. 124-129; Franchini, G. et al., Nature 328, 539 (1987); Varmus, H. Genes & Dev 2, 1055 (1988).

Principal neutralizing determinants (PNDs) have been located within a selected, conserved region of the env gene. These PNDs are still undefined. Applicants have discovered and defined new embodiments of PND.

AIDS is a disease of a virus with a unique collection of attributes. HIV itself targets the immune system; it possesses a reverse transcriptase capable of turning out highly mutated progeny; it is sequestered from the immune system and it has a hypervariable surface in the (env) region. See, e.g. Hilleman, M.R., Vaccine 6, 175 (1988); Barnes, D.M., Science 240, 719 (1988). In view of these attributes, it was neither anticipated nor expected that the principal neutralizing determinants of this invention would serve as effective AIDS immunogens.

BRIEF DESCRIPTION OF THE INVENTION

New principal neutralizing determinants of HIV are disclosed, and are useful as immunogens for AIDS vaccines, particularly in the form of conjugates

ABBREVIATIONS AND DEFINITIONS

| 45 | AIDS ARC | Acquired immune deficiency syndrome AIDS-related complex |
|----|-------------------------------|--|
| | conjugation | The process of covalently attaching 2 molecules each containing one or more immunological determinants, e.g., HIV envelope fragments and Omp |
| 50 | conjugate | Result of conjugation, also known as an antigenic conjugate or immunological conjugate |
| | HIV . | Generic term for the presumed etiological agent of AIDS and/or ARC, also referred to as strains HTLV-III, LAV, and ARV. |
| | PND | Principal neutralization determinant of HIV |
| | Omp | Outer membrane proteosome |
| 55 | Recombinant protein | A polypeptide or oligopeptide expressed by foreign DNA in a recombinant eukaryotic or procaryotic expression system. |
| | Recombinant expression system | A cell containing a foreign DNA expressing a foreign protein or a foreign oligopeptide. |

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| Amino Acids | | |
|----------------|---------------------|----------------------|
| Full Name | Three-letter symbol | One-letter symbol |
| Alanine | Ala | Α |
| Arginine | Arg | R |
| Asparagine | Asn | N |
| Aspartic acid | Asp | ם |
| Asn and/or Asp | Asx | В |
| Cysteine | Cys | С |
| Glutamine | Gln | Q |
| Glutamic acid | Glu | E |
| Gln and/or Glu | Glx | Z |
| Glycine | Gly | G |
| Histidine | His | н |
| Isoleucine | lle | ı |
| Leucine | Leu | L |
| Lysine | Lys | κ |
| Methionine | Met | М |
| Phenylalanine | Phe | F |
| Proline | Pro | Р |
| Serine | Ser | S |
| Threonine | Thr | Т |
| Tryptophan | Trp | w |
| Tyrosine | Tyr | Y |
| Valine | Val | v |

| Nucleotides Bases in DNA or RNA | |
|---------------------------------|-------------------|
| Name | One-letter symbol |
| Adenine | Α |
| Cytosine | С |
| guamine | G |
| thymine | Т . |
| uracil | U |

The terms "protein," "peptide," "oligopeptide," and "polypeptide" and their plurals have been used interchangeably to refer to chemical compounds having amino acid sequences of five or more amino acids. "Amino acid" refers to any of the 20 common amino acids for which codons are naturally available, and are listed in the table of amino acids given above.

When any variable (e.g. PND) occurs more than one time in any constituent or in Formula I, its definition on each occurrence is independent of its definition at every other occurrence. Also, combinations of substituents and/or variables are permissible only if such combinations result in stable compounds.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides an effective immunogen against AIDS or ARC, and comprises an antigenic conjugate of the formula

 $(PND)_n \sim (Omp)$ I,

55 wherein:

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PND is the principal neutraliziation determinant of HIV, which is a polypeptide of one or more amino acid sequences;

n = 1-50, wherein n is the number of polypeptides of PND covalently linked to Omp;

indicates covalent linkage;

Omp is outer membrane proteosome of the microorganism Neisseria;

said polypeptide containing in its sequence Gly-X-Gly, wherein X is proline, leucine, alanine, glutamine or serine.

The antigenic conjugates of this invention are prepared by isolating and purifying their component parts PND and Omp, then conjugating PND and Omp together. Subsequent purification of conjugate mixtures may be performed as desired.

The new PND amino acid sequences of this invention include any fragment thereof, provided said fragment is at least five amino acids in length.

Each PND amino acid sequence is determined by DNA sequencing of HIV clones amplified by the polymerase chain reaction.

Polymerase Chain Reaction Amplification

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Large amounts of DNA coding for PND protein may be obtained using polymerase chain reaction (PCR) amplification techniques as described in Mullis et al., U.S. Patent No. 4,800,159 and other published sources. See also, for example, Innis, M.A. et al. PCR Protocals Academic Press 1990. The extension product of one primer, when hybridized to another primer, becomes a template for the synthesis of another nucleic acid molecule.

The primer template complexes act as substrate for DNA polymerase which, in performing its replication function, extends the primers. The region in common with both primer extensions, upon denaturation, serves as template for a repeated primer extension.

Taq DNA Polymerase catalyzes primer extension in the amplification process. The enzyme is a thermostable DNA polymerase isolated from Thermus aquaticus. Because it stays active through repeated elevations to high denaturation temperatures, it needs to be added only once. Deoxynucleotide triphosphates provide the building blocks for primer extension.

The nucleic acid sequence strands are heated until they separate, in the presence of oligonucleotide primers that bind to their complementary strand at a particular site of the template. This process is continued with a series of heating and cooling cycles, heating to separate strands, and cooling to reanneal and extend the sequences. More and more copies of the strands are generated as the cycle is repeated. Through amplification, the coding domain and any additional primer-encoded information such as restriction sites or translation signals (signal sequences, start codons and/or stop codons) is obtained.PCR protocols are often performed at the 100 µL scale in 0.5 ml microcentrifuge tubes. The PCR sample may be single-or double-stranded DNA or RNA. If the starting material is RNA, reverse transcriptase is used to prepare first strand cDNA prior to PCR. Typically, nanogram amounts of cloned template, up to microgram amounts of genomic DNA, or 20,000 target copies are chosen to start optimization trials.

PCR primers are oligonucleotides, typically 15 to 50 bases long, and are complementary to sequences defining the 5' ends of the complementary template strands. Non-template complementary 5' extensions may be added to primers to allow a variety of useful post amplification operations on the PCR product without significant perturbation of the amplification itself. It is important that the two PCR primers not contain more than two bases complementary with each other, especially at their 3' ends. Internal secondary structure should be avoided in primers.

Because <u>Taq</u> DNA Polymerase has activity in the 37-55°C range, primer extension will occur during the annealing step and the hybrid will be stabilized. The concentrations of the primers are preferably equal in conventional PCR and, typically, are in vast excess of the template to be reproduced.

In one typical PCR protocol, each deoxynucleotide triphosphate concentration is preferably about 200 μ M. The four dNTP concentrations are preferably above the estimated Km of each dNTP (10-15 μ M).

Preferably PCR buffer is composed of about 500 mM potassium chloride, 10.0 mM Tris-HCl (pH 8.3 at room temperature), 1.5 mM magnesium chloride, and 0.01% w/v gelatin. In the presence of 0.8 mM total dNTP concentration, a titration series in small increments over the 1.5-to 4-mM range will locate the magnesium concentration producing the highest yield of a specific product. Too little free magnesium will result in no PCR product and too much free magnesium may produce a variety of unwanted products.

Preferably, in a 100-µL reaction volume, 2.0 to 2.5 units of Taq DNA Polymerase are recommended. The enzyme can be added conveniently to a fresh master mix prepared for a number of reactions, thereby avoiding accuracy problems associated with adding individual 0.5-µL enzyme aliquots to each tube. A typical PCR protocol for amplification of the DNA template includes a 1 minute 94°C denaturation step, a 1 minute 37°C primer annealing step, and a 2 minute 72°C primer extension step. This will amplify a 500 base-pair product at least 100,000-fold in 25 cycles.

During DNA denaturation, sufficient time must be allowed for thermal equilibration of the sample. The practical range of effective denaturation temperatures for most samples is 92-95°C, with 94°C being the standard choice.

Primer annealing is usually performed first at 37°C, and the specificity of the product is evaluated. If unwanted bands are observed, the annealing temperature should be raised in subsequent optimization runs. While the primer annealing temperature range is often 37-55°C, it may be raised as high as the extension temperature in some cases. Merging of the primer annealing and primer extension steps results in a two-step PCR process.

Primer extension, in most applications, occurs effectively at a temperature of 72°C and seldom needs optimization. In the two-temperature PCR process the temperature range may be 65-70°C. In situations where enzyme concentration limits amplification in late cycles, the extension is preferably increased linearly with cyclic number. Usually, 25 to 45 cycles are required for extensive amplification (i.e., 1,000,000 fold) of a specific target.

Once the DNA sequence is determined, through conventional and well-known techniques, its amino acid sequence can be deduced by "translating" the DNA sequence. The resulting amino acid sequence having the principal neutralizing determinant of the envelope gene is then employed to synthesize large quantities of PND protein or fragment thereof. Synthesis is performed by organic synthesis or by recombinant expression systems, or both.

20 Preparation of Principal Neutralization Determinant

A. Organic Synthesis of PND:

Standard and conventional methods exist for rapid and accurate synthesis of long peptides on solidphase supports. Solution-phase synthesis is usually feasible only for selected smaller peptides.

Synthesis on solid-phase supports, or solid-phase synthesis, is most conveniently performed on an automated peptide synthesizer according to e.g., Kent, S. et al., "Modern Methods for the Chemical Synthesis of Biologically Active Peptides," in Alitalo, K. et al., (eds.). Synthetic Peptides in Biology and Medicine, Elsevier 1985, pp. 29-57. Manual solid-phase synthesis may be employed instead, by following the classical Merrifield techniques, as described, for example, in Merrifield, R.B. J. Am. Chem. Soc. 85, 2149 (1963), or known improvements thereof. Solid-phase peptide synthesis may also be performed by the Fmoc method, which employs very dilute base to remove the Fmoc protecting group. Segment synthesis-condensation is a further variant of organic synthesis of peptides as within the scope of the techniques of the present invention.

In organic synthesis of peptides, protected amino acids are condensed to form amide or peptide bonds with the N-terminus of a growing peptide. Condensation is usually performed with the carbodiimide method by reagents such as dicyclohexylcarbodiimide, or N-ethyl, N_1 -(γ -dimethylaminopropyl) carbodiimide. Other methods of forming the amide or peptide bond include, but are not limited to, synthetic routes via an acid chloride, azide, mixed anhydride or activated ester. Common solid-phase supports include polystyrene or polyamide resins.

The selection of protecting groups of amino acid side claims is, in part, dictated by particular coupling conditions, in part by the amino acid and peptide components involved in the reaction. Such aminoprotecting groups ordinarily employed include those which are well known in the art, for example, urethane protecting substituents such as benzyloxycarbonyl (carbobenzoxy), p-methoxycarbobenzoxy, p-nitrocarbobenzoxy, t-butyloxycarbonyl, and the like. It is preferred to utilize t-butoxycarbonyl (BOC) for protecting the ϵ -amino group, in part because the BOC protecting group is readily removed by relatively mild acids such as trifluoroacetic acid (TFA), or hydrogen chloride in ethyl acetate.

The OH group of Thr and Ser may be protected by the Bzl (benzyl) group and the ε-amino group of Lys may be protected by the isopropoxycarbonyl (IPOC) group or the 2-chlorobenzyloxycarbonyl (2-CI-CBZ) group. Treatment with HF or catalytic hydrogenation are typically employed for removal of IPOC or 2-CI-CBZ.

For preparing cocktails of closely related peptides, see, e.g., Houghton, R.A., Proc. Natl. Acad. Sci. USA 82, 5131 (1985).

B. Expression of PND in a Recombinant Expression System

It is now a relatively straightforward technology to prepare cells expressing a foreign gene. Such cells act as hosts and include E. coli, B. subtilis, yeasts, fungi, plant cells or animal cells. Expression vectors for

many of these host cells have been isolated and characterized, and are used as starting materials in the construction, through conventional recombinant DNA techniques, of vectors having a foreign DNA insert of interest. Any DNA is foreign if it does not naturally derive from the host cells used to express the DNA insert. The foreign DNA insert may be expressed on extrachromosomal plasmids or after integration in whole or in part in the host cell chromosome(s), or may actually exist in the host cell as a combination of more than one molecular form. The choice of host cell and expression vector for the expression of a desired foreign DNA largely depends on availability of the host cell and how fastidious it is, whether the host cell will support the replication of the expression vector, and other factors readily appreciated by those of ordinary skill in the art.

The technology for recombinant procaryotic expression systems is now old and conventional. The typical host cell is E. coli. The technology is illustrated by treatises such as Wu, R (ed) Meth. Enzymol. 68 - (1979) and Maniatis, T. et. al., Molecular Cloning: A Laboratory Manual Cold Spring Harbor 1982.

The foreign DNA insert of interest comprises any DNA sequence coding for a PND (or fragment thereof of at least 5 amino acids in length) of the present invention, including any synthetic sequence with this coding capacity or any such cloned sequence or combination thereof. For example, PND peptide coded and expressed by an entirely recombinant DNA sequence is encompassed by this invention.

Vectors useful for constructing eukaryotic expression systems for the production of recombinant PND comprise the DNA sequence for PND, fragment or variant thereof, operatively linked thereto with appropriate transcriptional activation DNA sequences, such as a promoter and/or operator. Other typical features may include appropriate ribosome binding sites, termination codons, enhancers, terminators, or replicon elements. These additional features can be inserted into the vector at the appropriate site or sites by conventional splicing techniques such as restriction endonuclease digestion and ligation.

Yeast expression systems, which are one variety of recombinant eukaryotic expression systems, generally employ Saccharomyces cerevisiae as the species of choice for expressing recombinant proteins.

S. cerevisiae and similar yeasts possess well known promoters useful in the construction of yeast expression systems, including but not limited to GAP491, GAL10, ADH2, and alpha mating factor.

Yeast vectors useful for constructing recombinant yeast expression systems for expressing PND include, but are not limited to, shuttle vectors, cosmid plasmids, chimeric plasmids, and those having sequences derived from 2-micron circle plasmids.

Insertion of the appropriate DNA sequence coding for PND, fragment or variant thereof, into these vectors will, in principle, result in a useful recombinant yeast expression system for PND where the modified vector is inserted into the appropriate host cell, by transformation or other means.

Recombinant mammalian expression systems are another means of producing the recombinant PND for the conjugates of this invention. In general, a host mammalian cell can be any cell that has been efficiently cloned in cell culture. Host mammalian cells useful for the purposes of constructing a recombinant mammalian expression system include, but are not limited to, Vero cells, NIH3T3, GH3, COS, murine C127 or mouse L cells. Mammalian expression vectors can be based on virus vectors, plasmid vectors which may have SV40, BPV or other viral replicons, or vectors without a replicon for animal cells. Detailed discussions on mammalian expression vectors can be found in the treatises of Glover, D.M. (ed.) "DNA Cloning: A Practical Approach," IRL 1985, Vols. I and II.

Recombinant PND may possess additional and desirable structural modifications not shared with the same organically synthesized peptide, such as adenylation, carboxylation, glycosylation, hydroxylation, methylation, phosphorylation or myristoylation. These added features may be chosen or preferred as the case may be, by the appropriate choice of recombinant expression system. On the other hand, recombinant PND may have its sequence extended by the principles and practice of organic synthesis of section A above.

Conjugation of PND and Omp to Form a Covalent Linkage(s) Yielding Conjugate

Antigenic conjugates of PND and Omp are useful for vaccination against AIDS or ARC. Such conjugates have at least one covalent linkage between the antigen PND and Omp, and typically have more than one PND molecule covalently bound to each Omp molecule.

PND and Omp are prepared separately, then linked by non-specific cross-linking agents, monogeneric spaces or bigeneric spacers. Methods for non-specific cross-linking include, but are not limited to, reaction with glutaraldehyde; reaction with N-ethyl-N'-(3-dimethylaminopropyl) carbodiimide, with or without admixture of a succinylated carrier; periodate oxidation of glycosylated substituents followed by coupling to free amino groups of a protein carrier in the presence of sodium borohydride or sodium cyanoborohydride; diazotization of aromatic amino groups followed by coupling on tyrosine side chain residues of the protein;

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reaction with isocyanates; or reaction of mixed anhydrides. See, generally, Briand, J.P. et al. J. Imm. Meth. 78, 59 (1985). These methods of non-specifically cross-linking are conventional and well-known in the typical practice of preparing conjugates for immunological purposes.

In another embodiment of the invention conjugates formed with a monogeneric spacer are prepared. These spacers are bifunctional and require functionalization of only one of the partners of the reaction pair to be conjugated before conjugation takes place.

By way of illustration rather than limitation, an example of a monogeneric spacer involves coupling the polypeptide PND to one end of the bifunctional molecule adipic acid dihydrazide in the presence of carbodiimide. A diacylated hydrazine presumably forms with pendant glutamic or aspartic carboxyl groups of PND. Conjugation then is performed by a second coupling reaction with carrier protein in the presence of carbodiimide. For similar procedures, see for example, Schneerson, R. et al., J. Exp. Med. 152, 361 (1980). Another example of a monogeneric spacer is described in Fujii, N. et al. Int. J. Peptide Protein Res. 26, 121 (1985).

In another embodiment of the invention conjugates of PND and Omp are formed with a bigeneric spacer. These spacers are formed after each partner of the reaction pair to be conjugated, e.g., PND and Omp, is functionalized with a bifunctional spacer. Conjugation occurs when each functionalized partner is reacted with its opposite partner to form a stable covalent bond or bonds. See, for example, Marburg, S. et al., J. Am. Chem. Soc. 108, 5282-5287 (1986) and Marburg, S. et al., U.S. Patent 4,695,624, issued 22 September 1987, each incorporated by reference. Bigeneric spacers are preferred for preparing conjugates in human vaccines since the conjugation reaction is well characterized and easily controlled.

Typical and conventional immunological practice provides for the ready and easy synthesis of antigenic conjugates within the scope of the present invention, including the conjugation of Omp with virtually any desired degree of substitution of virtually any peptide of the Sequence Listing. Heterogeneous products of the conjugation reaction are easily separable if needed by a variety of suitable column chromatography techniques.

Vaccine Formulation

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The form of the immunogen within the vaccine takes various molecular configurations. A single molecular species of the antigenic conjugate (PND)_n~Omp will often suffice as a useful and suitable antigen for the prevention or treatment of AIDS or ARC. Other antigens in the form of cocktails are also advantageous, and consist of a mixture of conjugates that differ by, for example, the degree of substitution (n) or the amino acid sequence of PND or both.

An immunological vector or adjuvant may be added as an immunological vehicle according to conventional immunological testing or practice.

The conjugates of this invention when used as a vaccine, are to be administered in immunologically effective amounts. Dosages of between 1 μ g and 500 μ g of conjugate, and perferably between 50 μ g and 300 μ g of conjugate are to be administered to a mammal to induce anti-peptide, anti-HIV, or HIV-neutralizing immune responses. About two weeks after the initial administration, a booster dose may be administered, and then again whenever serum antibody titers diminish. The conjugate should be given intramuscularly at a concentration of between 10 μ g/ml and 1 mg/ml, and preferably between 50 and 500 μ g/ml, in a volume sufficient to make up the total required for immunological efficacy.

Adjuvants may or may not be added during the preparation of the vaccines of this invention. Alum is the typical and preferred adjuvant in human vaccines, especially in the form of a thixotropic, viscous, and homogeneous aluminum hydroxide gel. For example, one embodiment of the present invention is the prophylactic vaccination of patients with a suspension of alum adjuvant as vehicle and a cocktail of (PND)_n-Omp as the selected set of immunogens or antigens.

The vaccines of this invention may be effectively administered, whether at periods of pre-exposure and/or post-exposure, in combination with effective amounts of the AIDS antivirals, immunomodulators, anti-infectives, or vaccines of Table I.

TABLE I

| 5 | | ANTI-VIRALS | |
|-----------|------------------------------|---------------------|------------------------|
| Ū | Drug Name | <u>Manufacturer</u> | <u>Indication</u> |
| | AL-721 | Ethigen | ARC, PGL |
| | | (Los Angeles, CA) | HIV positive, AIDS |
| 10 | | | • |
| | Recombinant Human | Triton Biosciences | AIDS, Kaposi's |
| | Interferon Beta | (Almeda, CA) | sarcoma, ARC |
| 15 | | | |
| | Acemannan | Carrington Labs | ARC |
| | | (Irving, TX) | (See also immuno- |
| 20 | | | modulators) |
| | , | | |
| | Cytovene | Syntex | sight threateining CMV |
| | Ganciclovir | (Palo Alto, CA) | peripheral CMV |
| 25 | | | retinitis |
| | d4T | Deletal March | |
| | | Bristol-Myers | AIDS, ARC |
| 30 | Didehydrodeoxy- thymidine | (New York, NY) | |
| | cnymidine | | |
| | dd | Bristol-Myers | AIDS, ARC |
| $J\gamma$ | Dideoxyinosine | (New York, NY) | • |
| | | | |
| | EL10 | Elan Corp, PLC | HIV infection |
| 40 | | (Gainesville, GA) | (See also immuno- |
| | | | modulators) |
| | 7 | | |
| 45 | Foscarnet | Astra Pharm. | CMV retinitis, HIV |
| | Trisodium | Products, Inc. | infection, other CMV |
| | Phosphonoformate | (Westborough, MA) | infections |

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| 5 | <pre>Drug Name Dideoxycytidine; ddc</pre> | Manufacturer Hoffman-La Roche (Nutley, NJ) | Indication AIDS, ARC |
|----|---|---|---|
| 10 | Novapren | Novaferon Labs, Inc. (Akron, OH) Diapren, Inc. (Roseville, MN, marke | |
| 15 | Peptide T Octapeptide Sequence | Peninsula Labs (Belmont, CA) | AIDS |
| 20 | Retrovir Zidovudine; AZT | Burroughs Wellcome (Rsch. Triangle Park, NC) | AIDS, adv, ARC pediatric AIDS, Kaposi's sarcoma, |
| 25 | | | asymptomatic HIV infection, less severe HIV disease, |
| 30 | | | <pre>neurological involve- ment, in combination w/other therapies, post-exposure pro-</pre> |
| 35 | | | phylaxis in health care workers |
| 40 | Rifabutin Ansamycin LM 427 | Adria Laboratories (Dublin, OH) Erbamont (Stamford, CT) | ARC . |
| 45 | | | |

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| 5 | <u>Drug Name</u> Dextran Sulfate | Manufacturer Ueno Fine Chem. Ind. Ltd. (Osaka, Japan) | Indication AIDS, ARC, HIV positive asymptomatic |
|----------|--|---|--|
| 10 | Virazole Ribavirin | Viratek/ICN (Costa Mesa, CA) | asymptomatic HIV positive, LAS, ARC |
| 15 | Alpha Interferon | Burroughs Wellcome (Rsch. Triangle Park, NC) | <pre>Kaposi's sarcoma, HIV in combination w/Retrovir</pre> |
| 20 | | Immuno-modulators | |
| 25 30 | Drug Name Antibody which neutralizes pH labile alpha aber- rant Interferon in an immuno- adsorption column | Manufacturer Advanced Biotherapy Concepts (Rockville, MD) | Indication AIDS, ARC |
| 35 | AS-101 | Wyeth-Ayerst Labs. (Philadelphia, PA) | AIDS |
| 40 | Bropirimine | Upjohn (Kalamazoo, MI) | advanced AIDS |
| 45 | Acemannan | Carrington Labs, Inc. (Irving, TX) | AIDS, ARC (See also anti- virals) |

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| 5 | Drug Name CL246,738 | Manufacturer American Cyanamid (Pearl River, NY) Lederle Labs (Wayne, NJ) | Indication AIDS, Kaposi's sarcoma |
|----|--|---|--|
| 10 | EL10 | Elan Corp, PLC | HIV infection |
| | | (Gainesville, GA) | (See also anti- virals) |
| 15 | Gamma Interferon | Genentech (S. San Francisco, | ARC, in combination |
| 20 | | CA) | <pre>w/TNF (tumor necrosis factor)</pre> |
| | Granulocyte Macrophage Colony | Genetics Institute (Cambridge, MA) | AIDS |
| 25 | Stimulating Factor | Sandoz (East Hanover, NJ) | |
| 30 | Granulocyte Macrophage Colony Stimulating Factor | Hoeschst-Roussel (Somerville, NJ) Immunex (Seattle, WA) | AIDS |
| 35 | Granulocyte Macrophage Colony | Schering-Plough (Madison, NJ) | AIDS |
| 40 | Stimulating Factor | (Hadibon, NJ) | AIDS, in combination w/Retrovir |
| 45 | HIV Core Particle Immunostimulant | Rorer (Ft. Washington, PA) | seropositive HIV |

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| | Drug Name | Manufacturer | <u>Indication</u> |
|----|------------------|--------------------|------------------------|
| | IL-2 | Cetus | AIDS, in combaintion |
| 5 | Interleukin-2 | (Emerycille, CA) | w/Retrovir |
| | IL-2 | Hoffman-La Roche | AIDS, ARC, HIV, in |
| 10 | Interleukin-2 | (Nutley, NJ) | combination w/Retrovir |
| | Immune Globulin | Cutter Biological | pediatric AIDS, in |
| 15 | Intravenous | (Berkeley, CA) | combination |
| | (human) | | w/Retrovir |
| 20 | IMREG-1 | Imreg | AIDS, Kaposi's |
| | | (New Orleans, LA) | sarcoma, ARC, PGL |
| | IMREG-2 | Imreg | AIDS, Kaposi's |
| 25 | | (New Orleans, LA) | sarcoma, ARC, PGL |
| | Imuthiol Diethyl | Merieux Institute | AIDS, ARC |
| 30 | Dithio Carbamate | (Miami, FL) | |
| • | INTRON A | Schering Plough | Kaposi's sarcoma |
| | Alpha-2 | (Madison, NJ) | w/Retrovir: AIDS |
| 35 | Interferon | | |
| | Methionine- | TNI Pharmaceutical | AIDS, ARC |
| 40 | Enkephalin | (Chicago, IL) | • |
| | MTP-PE | Ciba-Geigy Corp. | Kaposi's sarcoma |
| | Muramy1- | (Summit, NJ) | |
| | Tripeptide | | |

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| | Drug Name | Manufacturer | Indication |
|----|-------------------|-----------------------|----------------------|
| | Granulocyte | Amgen | AIDS, in combination |
| - | Colony | (Thousand Oaks, CA) | w/Retrovir |
| 5 | Stimulating | | |
| | Factor | | |
| 10 | rCD4 | Genentech | AIDS, ARC |
| 10 | Recombinant | (S. San Francisco, | AIDS, ARC |
| | Soluble Human CD4 | | |
| | Soluble Human CD4 | CA) | |
| 15 | Recombinant | Biogen | AIDS, ARC |
| | Soluble Human CD4 | (Cambridge, MA) | AIDS, ARC |
| | boldbic numan CD4 | (Cambiidge, IA) | |
| 20 | | | |
| | Roferon-A | Hoffman-La Roche | Kaposi's sarcoma |
| | Interferon | (Nutley, NJ) | AIDS, ARC, in |
| 25 | Alfa 2a | | combination |
| 20 | | | w/Retrovir |
| | | | |
| | SK&F106528 | Smith, Kline & French | HIV infection |
| 30 | Soluble T4 | Laboratories | |
| | | (Philadelphia, PA) | |
| | | | |
| 35 | Thymopentin | Immunobiology | HIV infection |
| | | Research Institute | |
| | | (Annandale, NJ) | |
| 40 | Tumor Necrosis | Genentech | ARC is combine |
| | Factor; TNF | (S. San Francisco, | ARC, in combina- |
| | | CA) | tion w/gamma |
| | | CA/ | Interferon |

Anti-Infectives

| 5 | Drug Name Clindamycin with Primaquine | Manufacturer Upjohn (Kalamazoo, MI) | Indication PCP |
|----------|---|---|--|
| 10 | Diflucan Fluconazole | Pfizer (New York, NY) | cryptococcal meningitis, candidiasis |
| 15 | Pastille Nystatin Pastille | Squibb Corp. (Princeton, NJ) | prevention of oral candidiasis |
| 20 | Ornidyl Eflornithine | Merrell Dow (Cincinnati, OH) | PCP |
| 25 | Pentamidine Isethionate (IM & IV) | LyphoMed (Rosemont, IL) | PCP treatment |
| 30 | Piritrexim | Burroughs Wellcome (Rsch. Triangle Park, NC) | PCP treatment |
| 35 | Pentamidine isethionate for inhalation | Fisons Corporation (Bedford, MA) | PCP prophylaxis |
| 40 45 | Spiramycin | Phone-Poulenc Pharmaceuticals (Princeton, NJ) | cryptosporidial diarrhea |

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| 5 | <u>Drug Name</u> Intraconazole- R51211 | Manufacturer Janssen Pharm. (Piscataway, NJ) | Indication histoplasmosis; cryptococcal meningitis |
|----|--|---|--|
| 10 | Trimetrexate | Warner-Lambert Other | PCP |
| 15 | Drug Name Recombinant Human Erythropoietin | Manufacturer Ortho Pharm. Corp. (Raritan, NJ) | Indication severe anemia assoc. and Retrovir therapy |
| 25 | Megestrol Acetate | Bristol-Myers (New York, NY) | treatment of anorexia assoc. w/AIDS |
| 30 | Total Enteral | Norwich Eaton Pharmaceuticals (Norwich, NY) | diarrhea and malabsorption related |

It will be understood that the scope of combinations of the antigenic conjugates of this invention with 35 AIDS antivirals, immunomodulators, anti-infectives or vaccines is not limited to the list in the above Table, but includes in principle any combination with any pharmaceutical composition useful for the treatment of AIDS. The antigenic conjugates as AIDS or HIV vaccines of this invention include vaccines to be used preor post-exposure to prevent or treat HIV infection or disease, and are capable of producing an immune response specific for the immunogen.

EXAMPLE 1

Isolation of Genomic DNA from Frozen (-20 °C) Pellets of Peripheral Blood Lymphocytes

Each DNA was prepared respecting the principle that preparation and storage of high molecular weight DNA be segregated from all polymerase chain reaction (PCR) amplification experiments.

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| | <u>Reagents</u> P-K Buffer | | |
|----|-------------------------------|----------|--|
| 5 | 10 mM Tris | | Prepare using sterile H ₂ 0 in |
| | 400 mM NaCl | рН 7.4 | plastic labware. Sterile filter |
| | 2 mM EDTA | | through a 0.45 μm filter |
| | | | device and aliquot 10 ml into |
| 10 | | | 15 ml conical tubes. Store at |
| | | | -20°C. |
| 15 | Proteinase K | 1.0mg/m1 | Dissolve the contents of a bottle |
| | | | in sterile H ₂ O to a final conc. |
| | | | of 1.0 mg/ml. Aliquot 0.3-0.5 ml |
| 20 | | | into freezer tubes. Store at |
| | | | -20°C. |
| | SDS 10% | | Prepare using sterile H ₂ O in |
| 25 | 505 10% | | plastic labware. Sterile filter |
| | | | through a 0.45 µm filter device |
| | | | and aliquot 2.0 ml into Nalgene |
| 30 | | | freezer tubes. Store at -20°C. |

Phenol:Chloroform 50:50 Prepare and aliquot 8.0 ml into 15 ml conical tubes and store at -20°C in the dark.

RNase A 1.0 mg/ml

Dissolve the contents of a bottle in sterile H₂O to a final conc. of 1.0 mg/ml. Aliquot 0.3-0.5 ml into freezer tubes. Store at -20°C.

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95% and 70% EtOH

Store at -20°C.

Dilution Buffer
10 mM Tris
25 mM NaCl pH 8.0
0.1 mM EDTA

Prepare using sterile $\rm H_2O$ in plastic labware. Sterile filter through a 0.45 μm filter device and aliquot 10 ml in 15 ml conical tubes. Store at 4°C.

- 1) Suspend cell pellets of co-cultivated patient peripheral blood lymphocytes in 0.5 ml of P-K Buffer taking care to break up pellet completely.
- 2) Adjust sample to 100 µg/ml Proteinase K with 1.0 mg/ml stock. Mix well.
- 3) Adjust sample to 0.5% SDS with 10% stock. Mix well and incubate at 50°C for 16-24 hours.
- 4) Extract sample with an equal volume of Phenol: Chloroform for 10 minutes @ 21-25° C.
- 5) Split phases by centrifugation @ 2K for 5 minutes.
- 6) Remove aqueous and re-extract with an equal vol. of CHCl₃ for 2-5 minutes @ 21-25° C. Split phases as before.
- 7) Repeat Step 6.
- 8) Adjust aqueous to 100 µg/ml RNase A with 1.0 mg/ml stock and incubate @ 37° C for 90 minutes.
- 9) Repeat Steps 4, 5, 6, and 7.
- 10) Precipitate DNA with the addition of 2.5 vol of cold 95% EtOH.
- 11) Collect DNA for 30 minutes at 10,000 RPM's at 4° C.
 - 12) Remove EtOH and wash pellet once with 70% EtOH. Spin for 2 minutes as 10,000 RPM's.
 - 13) Remove EtOH and dissolve the pellet in 300λ of dilution buffer.

EXAMPLE 2

PCR Amplification of Genomic DNA from HIV Isolates

Genomic DNA was amplified by the polymerase chain reaction according to Scharf, S.J. et al. Science 233, 1076 (1986). A heat resistant T. aquaticus DNA polymerase was employed to enhance stability during thermal cycling. See, e.g., Saiki, R. K. et al. Science 239, 487 (1988). Excess primer for each strand was used. The primers were

RP.Hpa having the sequence

5'-P-TCT-GTT-AAC-TTC-ACA-GAC-AAT-GCT-AAA-ACC-ATA-ATA-GTA-CAG-CTG-3'; and RP.Cla having the sequence

5'-P-GCA-ATC-GAT-CTG-TTT-TAA-AGT-GTT-ATT-CCA-TTT-TGC-3'

The 5' phosphate was added by chemical methods, according to Horn, T. et al., Tetrahedron Letters 27, 4705 (1986).

EXAMPLE 3

Filtration of PCR Amplified Sequences

5 General Considerations:

This filtration step removes free nucleotides and low molecular weight oligonucleotide contaminants which inhibit ligation, according to Sharf, et al. Science, 233, 1076 (1986).

- 1) Dilute up to 100λ of sample (1-2 μg DNA/ml) of Example 2 to 400λ with "buffer" (10 mM Tris*HCl, 25 mM NaCl, 0.1 mM EDTA, all buffered to pH8) and spin in a microcentrifuge for 5 minutes at RT.
- N.B. No more than 4 samples can be placed in same rotors at one time. Be sure that the cap of the tube is completely closed or some volume may spray out of the unit. If using a non-dedicated microcentrifuge, spin sample at 2000 x g.
- 2) Remove insert and place in a clean 1.5 ml plastic tube containing a polysulfone filter with a 100,000 dalton molecular weight cut off. Redilute sample to 400λ with buffer and spin as before.
- 3) Repeat Step 2.
- 4a) For Cloning purposes:

Remove sample and rinse membrane gently with 10-20 λ of buffer. Combine the sample and rinse and adjust back to the original volume. Check on agarose gel for yield and purity.

4b) For Reamplification purposes:

Remove sample carefully measuring volume. Rinse the membrane gently with additional buffer as above. Adjust back to the original volume (100λ) and use 5λ of the sample for reamplification.

EXAMPLE 4

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Ligation and Cloning of PCR Amplified Sequences

Reagents

pUC13 SmaI/Bap

A cloning vector commercially prepared by Pharmacia, dissolved in 10 mM Tris pH8.0, aliquoted and stored at -20°C. Its

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sequence and preparation are described in Vieira, J. et al., Gene 19, 259 (1982), incorporated by reference for these purposes.

5X ligation buffer 250 mM Tris pH7.8 50 mM MgCl₂ 100 mM DTT

> 5.5 mM ATP 250 mg/ml BSA

prepared from stocks aliquoted and stored at -20°C.

20 T_A DNA Ligase

New England Biolabs

SOC media

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Final Concentration

| | bactotryptone | 2% |
|----|---------------------------------------|--------------------|
| | Yeast Extract | 0.5% |
| | NaC1 | 10 mM |
| 35 | KC1 | 2.5 mM |
| | MgCl ₂ , MgSO ₄ | 20 mM (10 mM each) |
| | Glucose | 20 mM |
| | Distilled H ₂ O | |
| 40 | 2 | |

- To 97 ml distilled H₂O, add bacto-tryptone, yeast extract, NaCl and KCl. Stir to dissolve, autoclave, and cool to room temperature. Make medium 20 mM in Mg⁺⁺ stock with a 2 M Mg⁺⁺ (1 M MgCl₂•6H₂O + 1 M MgSO₄•

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7H₂O, filtersterilized). Add 2⁴M glucose stock (filtersterilized) to make the medium 20 mM final. Filter the complete medium through a 0.2 µm filter unit. pH should be 7.0 ± 0.1. Filtersterilizing units should be prefiltered with distilled H,O before use to remove any toxic material from the filter.

Luria Bertani Agar + 100 μ g/ml

Ampicillin - commercially prepared from REMEL. For composition, see Sambrook, J. et al., Molecular Cloning 3, A.1 (2nd Ed., 1989)

Xgal 2% in dimethylformamide

stored at -20°C. Xgal is
 5-bromo-4-chloro-3-indoly1
 B-D-galactoside.

IPTG 100 mM in H₂0

- stored at -20°C. IPTG is isopropyl-thiogalactoside.

- 1). Combine 10 λ of filtered PCR amplified DNA (10-20 ng/ml) with 20 ng of pUCl3 Smal/BAP and 100 units of T₄ DNA ligase in a final volume of 20 λ .
- 2). Incubate at 21-25°C for 3 hours.
- 3). Transform 100λ of tranformation competent bacteria using 10λ of ligation buffer.
- 4). Incubate on ice for 30 minutes in sample tubes.

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- 5). Heat shock tubes for 45 seconds at 42°C.
- 6). Reincubate on ice for 2 minutes before adding 1.0 ml of SOC media (21-25°C).
- 7). Incubate 1 hour at 37 °C shaking at 225 RPM's.
- 8). Pellet cells in 1.5 ml plastic tubes for 10 seconds at maximum speed.
- 9). Remove the media except about 100λ. Care should be taken removing the media as the pellet is loose.
 - 10). Resuspend the cells in the remaining 100λ and spread on an L agar plate containing Ampicillin and onto which 100λ of Xgal and 50λ of IPTG had been previously spread.
 - 11). Invert the incubate at 37 °C. Colonies are visible after 12 hours. Blue color indication is clear after 16 hours.

EXAMPLE 5

Isolation of Plasmid DNA for Subsequent Dideoxy Sequence Analysis

Reagents

MP Buffer 1

50 mM Glucose
 10 mM EDTA
 25 mM Tris pH 8.0

MP Buffer 2 - made fresh for each experiment

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0.2 N NaOH 1% SDS

MP Buffer 3

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Potassium Acetate pH ~5.6 60 ml 5M KOAc 28.5 ml H₂O 11.5 ml gl. HOAc

RNase Stock

1.0 mg/ml RNase A dissolved in H_2O and boiled 10 minutes

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Phenol:Chloroform (50:50)

Phenol is buffer saturated with an equal volume of buffer (50 mM Tris*HCl, 100 mM NaCl, 1mM EDTA, pH 8.0)

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PEG

13% Poly Ethylene Glycol (PEG-8000)

50 4M NaCl

95% and 70% EtOH

- 1). Three individual colonies from each isolate are selected at random and placed in 10 ml of L Broth. Each are grown overnight in a 50 ml conical tube shaking @ 225-250 RPM's @ 37°C.
 - 2). Collect 9.5 ml of overnight culture at 1K for 20 minutes.
 - 3). Dry pellet well and resuspend by vortexing in 200 λ of MP 1. Transfer to a 1.5 ml plastic tube. Incubate 5 minutes @ RT.

- 4). Add 40λ of MP 2 and incubate 5 minutes on ice. Mix by inversion.
- 5). Add 300 λ of MP 3 and incubate 5 minutes on ice. Mix by inversion.
- 6). Centrifuge 10,000 Xg for 5 minutes @ 4°C.
- 7). Transfer supernatant to a fresh 1.5 ml tube and add 10λ of a 1.0 μ g/ml RNase A stock. Incubate 30 minutes @ 37 ° C.
- 8). Extract with an equal volume (-500\(\lambda\)) of buffer saturated phenol:chloroform. Split phases.
- 9). Transfer aqueous to a fresh tube and precipitate by adding 1.0 ml of cold EtOH. Incubate @ -70° C for 30 minutes.
- 10). Collect at full speed (about 10,000 Xg) for 15 minutes @ 4°C.
- 11). Remove EtOH and wash with 1.0 ml cold 70% EtOH. Respin for 2 minutes.
 - 12). Remove EtOH and drain tube well. Dry pellet by inversion and then redissolve in 80λ H₂O.
 - 13). Adjust sample with 20\(\lambda\) 4M NaCl and 100\(\lambda\) PEG. Incubate 30 minutes on ice.
 - 14). Centrifuge at full speed (about 10,000 Xg) for 15 minutes @ 4°C.
 - 15). Remove supernatant and wash pellet with 1.0 ml cold 70% EtOH. Respin for 2 minutes.
 - 16). Remove EtOH and drain tube well. Dry pellet in speed vac. and then redissolve in 20λ H₂O.

EXAMPLE 6

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DETERMINATION OF THE DNA SEQUENCE

Sequencing was performed by the method of Tabor, S. et al., Proc. Nat. Acad. Sci., 84, 4767 (1987). Sequencing gels were read and checked with a scanner. Amino acid sequences were deduced from DNA.

EXAMPLE 7

Preparation of Synthetic Peptides

A. The oligopeptide EE15-1 of the sequence:

1 5 10 15 Cys Thr Arg Pro Ser Asn Asn Thr Arg Arg Gly Ile His Ile Gly

TGT ACA AGA CCC AGC AAC AAT ACA AGA AGA GGT ATA CAT ATA GGA

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Pro Gly Arg Ala Leu Tyr Thr Thr Gly Glu Ile Thr Gly Asp Ile CCA GGG AGA GCA CTT TAT ACA ACA GGA GAA ATA ACA GGA GAT ATA

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Arg Arg Ala Tyr Cys

45 AGA CGA GCA TAT TGT

is synthesized by conventional solid-phase techniques on an automated peptide synthesizer, according to Kent, S. et al., "Modern Methods for the Chemical Synthesis of Biologically Active Peptides," in Alitalo, K. et al. (eds.), Synthetic Peptides in Biology and Medicine, Elsevier 1985, pp. 29-57.

- B. Each of the peptides of the Sequence Listing is prepared by the same method.
- C. Oligopeptide EE15-1 was prepared in a recombinant expression system in E. coli according to the methods of Sambrook, J. et al., Molecular Cloning 3, 17.3 et seq. Cold Spring Harbor 2nd Ed. 1988.

Every other peptide of the Sequence Listing is also prepared in a recombinant expression system in E. coli.

EXAMPLE 8

Extraction and Purification of Omp

A. First Method

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All materials, reagents and equipment were sterilized by filtration, steam autoclave or ethylene oxide, as appropriate; asceptic technique was used throughout.

A 300 gm (wet weight) aliquot of 0.5% phenol inactivated cell paste of Meningococcal group B11 was suspended in 1200 mls of distilled water than suspended by stirring magnetically for 20 minutes at room temperature. The suspended cells were pelleted at 20,000 xg for 45 minutes at 5°C.

For extraction, the washed cells were suspended in 1500 mls 0.1 M Tris, 0.01 M EDTA Buffer pH 8.5 with 0.5% sodium deoxychloate (TED Buffer) and homogenized with a 500 ml Sorvall omnimixer at setting 3 for 60 seconds. The resulting suspension was transferred to ten Erlenmeyer flasks (500 ml) for extraction in a shaking water bath for 15 minutes at 56 °C. The extract was centrifuged at 20,000 x g for 90 minutes at 5 °C and the viscous supernatant fluid was decanted (volume = 1500 mls). The decanted fluid was very turbid and was recentrifuged to clarify further at 20,000 x g for 90 minutes at 5 °C. The twice spun supernatant fluid was stored at 5 °C. The extracted cell pellets were resuspended in 1500 mls TED Buffer. The suspension was extracted for 15 minutes at 56 °C and recentrifuged at 20,000 x g for 90 minutes. The supernatant fluids which contained purified Omp were decanted (volume = 1500 mls) and stored at 5 °C.

20 B. Second Method

All material, reagents, equipment and filters were sterilized by heat, filtration or ethylene oxide. One exception was the K-2 ultracentrifuge which was sanitized with a 0.5% formalin solution. Laminar flow canopies provided sterility protection during equipment connections. Aseptic techniques were followed throughout the entire operations. Overnight storage of the protein was at 2-8°C between steps. A 0.2 micron sterile filtration was conducted just before the final diafiltration to ensure product sterility.

Two 600-liter batches of Neisseria meningitidis were fermented and killed with 0.5% phenol, then concentrated to roughly 25 liters using two 10 ft² 0.2 micron polypropylene cross-flow filtration membranes. The concentrated broth then was diafiltered with 125 liters of cell wash buffer (0.11 M Sodium Chloride, 17.6 mM Sodium Phosphate Diabasic, 23.3 mM Ammonium Chloride, 1.34 mM Potassium Chloride, adjusted to pH 7 with 85% Phorphoric Acid followed by 2.03 mM Magnesium Sulfate Heptahydrate).

For extraction, an equal volume of 2X-TED buffer (0.2M Tris, 0.02M EDTA adjusted to pH 8.5 with concentrated HCl followed with the addition of 1.0% sodium deoxycholate) was added to the cell slurry. The resulting slurry was heated to 56 \pm 3 °C and maintained at this temperature for 30 minutes to complete the extraction of Omp from the cells.

For further purification, the extracted cell slurry was centrifuged at 30,000 x g (18,000 rpm) in a "one-pass" flow mode in a K-ultracentrifuge, and the supernatant stream was collected. The low-speed supernatant was concentrated to 10 liters on two 0.1-micron polysulfone autoclavable hollow-fiber membranes and collected in an 18 liter sterile bottle. The filtration equipment was given two 4-liter rinses with TED buffer (0.1M Tris, 0.01M EDTA, adjusted to pH 8.5 with concentrated HCl, followed with the addition of sodium deoxycholate to 0.5%) which was combined with the retentate. The retentate was subdivided into two or three equal parts. Each part was centrifuged at 80,000 x g (35,000 rpm) for 30 mintues. The Omp protein was pelleted, and the majority of soluble proteins, nucleic acids and endotoxins remained in the supernatant. The supernatant was discarded. The pelleted protein was resuspended by recirculating 55 ± 5 °C TED buffer through the rotor. The first high-speed resuspensions were combined and subjected to a second low-speed spin. The second low-speed spin ensured that residual cell debris was removed from the product stream. The second low speed supernatant was subdivided into two or three equal parts. Each fraction was given two consecutive high-speed spins. All high-speed spins were operated under the same conditions and each further purified the Omp protein.

For sterile filtration and final diafiltration, the third high-speed resuspensions were diluted with an equal volume of TED buffer and filtered through a 0.2 micron cellulose acetate filter. When all fractions were permeated, an 8 L TED buffer rinse was used to flush the filtration system. The permeate and rinse were combined and concentrated to 3 liters on a 0.1 micron polysulfone autoclavable hollow fiber membrane. The material then was diafiltered with 15 liters of sterile pyrogen free water. The retentate was collected in a 4-liter bottle along with a 1-L rinse to give the final product. The final aqueous suspension was stored at 2-8 °C, as purified Omp.

C. Third Method

Omp is purified from 0.2 M LiCl-0.1M Na Acetate, pH 5.8, extracts by ultracentrifugation, by the method of C.E. Frasch et al. J. Exp. Med. 140, 87-104 (1974), herein incorporated by reference.

EXAMPLE 9

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A. Preparation of (EE15-1 Peptide)-Omp conjugate ("EE15-1-Omp" conjugate)

N-acetylhomocystaminylated outer membrane protein (Omp) of N. meningitidis from 59 mg of Omp (purified by Method B of Example 2) is prepared by the centrifugation method described in Marburg, S. et al., J. Am. Chem. Soc. 108:5282 (1986). This material (about 50 mg) is reacted at pH 8 (6.5 mL 0.1M $\overline{PO_4}$ buffer) with 20 mg of N- $\overline{\Omega}$ -bromoacetylated EE15-1 (lyophilized) under N₂ for 18 hours at room temperature.

The reaction mixture is diluted to 10 mL with H_2O and centrifuged for 2h, at 4°C and 43,000 rpm. The supernatant is removed, and the pellet resuspended, using a Dounce tissue homogenizer, in 10 mL of H_2O . This suspension is recentrifuged (as above) and the pellet resuspended in 9.5 mL of H_2O . A low speed spin for 1 minute in a clinical centrifuge removes a flocculent insoluble material if any. The degree of substitution can be determined and calculated by a variety of methods.

B. Preparation of Other Peptide Conjugates

By the method of Example 9A the following peptide-Omp conjugates are obtained:

(EE15-1)5-Omp,

(EE164-3)4-Omp,

(EE244-1)₆-Omp,

(EE310-2)8-Omp,

(EE311-1)₁₀-Omp,

(EE359-2)_{6.5}-Omp,

(EE360-1)3.3-Omp, and

(EE543-1)_{4.0}-Omp.

30 EXAMPLE 10

Protocol for Inoculation of Animals with the (EE15-1)5-Omp Conjugate (hereinafter "EE-15-1-Omp" conjugate)

Alum is used as an adjuvant during the inoculation series. The inoculum is prepared by dissolving the EE15-1-Omp conjugate in physiologic saline at a final conjugate concentration of 100 μ g/ml. Preformed alum (aluminum hydroxide gel) is added to the solution to a final level of 500 μ g/ml aluminum. The conjugate is allowed to adsorb onto the alum gel for two hours at room temperature. Following adsorption, the gel with the conjugate is washed twice with physiologic saline and resuspended in the saline to a protein concentration of about 100 μ g/ml.

African green monkeys are individually inoculated with four 100 mcg doses of the EE15-1-Omp conjugate adsorbed onto alum. Each dose is injected intramuscularly. The doses are delivered one or five months apart (week 0, 4, 8 and 28). The animals are bled at intervals of two or four weeks. Serum samples are prepared from each bleed to assay for the development of specific antibodies as described in the subsequent examples.

EXAMPLE 11

Analysis of Sera for Anti-Peptide IgG Antibodies

Each serum sample is analyzed by enzyme-linked immunoadsorbent assay (ELISA). Polystyrene microtiter plates are coated with 0.5 µg per well of the synthetic peptide (not conjugated to Omp) in phosphate-buffered physiological saline (PBS) at 4 °C. Each well is then washed with PBS containing 0.05% TWEEN-20 (PBS-T). Test serum, diluted serially in PBS-T, is added to the peptide-containing wells and allowed to react with the adsorbed peptide for one hour at 36 °C. After washing with PBS-T, alkaline phosphatase-conjugated goat anti-human IgG is added to the test wells and is allowed to react for one hour at 36 °C. The wells are then washed extensively in PBS-T. Each well receives 0.1% p-nitrophenyl phosphate in 10% diethanolamine, pH 9.8, containing 0.5 mM MgCl₂6H₂O. The ensuing reaction is allowed

to proceed at room temperature for 30 minutes, at which time it is terminated by the addition of 3.0 N NaOH.

The greater the interaction of antibodies in the test serum with the peptide substrate, the greater is the amount of alkaline phosphatase bound onto the well. The phosphatase enzyme mediates the breakdown of p-nitrophenyl phosphate into a molecular substance which absorbs light at a wavelength of 405 nm. Hence, there exists a direct relationship between the absorbance at 405 nm of light at the end of the ELISA reaction and the amount of peptide-bound antibody.

Titers of anti-(EE15-1-Omp) antibody are thus readily determined.

EXAMPLE 12

Analysis of Sera for Activity which Specifically Neutralizes HIV Infectivity

Virus-neutralizing activity is determined with an assay described by Robertson et al., J. Virol. Methods 20: 195-202 (1988). The assay measures specific HIV-neutralizing activity in test serum. The assay is based on the observation that MT-4 cells, a human T-lymphoid cell line, are readily susceptible to infection with HIV and, after a period of virus replication, are killed as a result of the infection.

The test serum is treated at 56° C for 60 minutes prior to the assay. This treatment is required to eliminate non-specific inhibitors of HIV replication. Heat treated serum, serially diluted in RPMI-1640 cell culture medium, is mixed with a standard infection dose of HIV. The dose is determined prior to the assay as containing the smallest quantity of virus required to kill all the MT-4 cells in the assay culture after a period of 7 days. The serum-virus mixture is allowed to interact for one hour at 37° C. It then is added to 1.0×10^{5} MT-4 cells suspended in RPMI-1640 growth medium supplemented with 10% fetal bovine serum. The cultures are incubated at 37° C in a 5% CO₂ atmosphere for 7 days.

At the end of the incubation period, a metabolic dye, DTT, is added to each culture. This dye is yellow in color upon visual inspection. In the presence of live cells, the dye is metabolically processed to a molecular species which yields a blue visual color. Neutralized HIV cannot replicate in the target MT-4 cells and therefore does not kill the cells. Hence, positive neutralization is assessed by the development of blue color following addition of the metabolic dye.

All the monkeys inoculated with the EE15-1-Omp conjugate are bled for specific HIV infectivity-neutralizing activity. Further follow-up evaluation of the same monkeys is also performed. Booster shots are also administered to ascertain renewed neutralizing titer.

While the foregoing specification teaches the principles of the present invention, with examples provided for the purpose of illustration, it will be understood that the practice of the invention encompasses all of the usual variations, adaptations, modifications, deletions or additions of procedures and protocols described herein, as come within the scope of the following claims and its equivalents.

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| | SEQUENCE LISTING |
|----|--|
| | (1) GENERAL INFORMATION: |
| | (i) APPLICANT: J.A. LEWIS ET AL. |
| 5 | (ii) TITLE OF INVENTION: NEW EMBODIMENTS OF THE |
| | HIV PRINCIPAL NEUTRALIZING DETERMINANT |
| | (iii)CORRESPONDENCE ADDRESS: MERCK & CO., INC. |
| | (A) STREET: P.O. BOX 2000, EAST LINCOLN AVE. |
| | (B) CITY: RAHWAY |
| 10 | (C) STATE: NEW JERSEY |
| | (D) COUNTRY: USA |
| | (E) ZIP: 07065 |
| | (iv) COMPUTER READABLE FORM: |
| | (A) MEDIUM TYPE: Diskette, 5.25 in., 360 Kb storage |
| 15 | (B) COMPUTER: Wang PC 381 |
| | (C) OPERATING SYSTEM: MS-DOS 3.30.10 |
| | (D) SOFTWARE: Microsoft WORD 5.0 |
| | (v) CURRENT APPLICATION DATA: |
| | (A) APPLICATION NUMBER: NA |
| 20 | (B) FILING DATE: NA |
| | (C) CLASSIFICATION: NA |
| | (vi) PRIOR APPLICATION DATA: NONE |
| | (A) DOCUMENT NUMBER: |
| | (B) COUNTRY: |
| 25 | (C) FILING DATE: |
| | (D) PUBLICATION DATE: |
| | (vii) ATTORNEY/AGENT INFORMATION: (A) NAME: R.D. MEREDITH |
| | (B) REGISTRATION NUMBER: 30,777 |
| | (C) REFERENCE/DOCKET NUMBER: 18114Y |
| 30 | (viii) TELECOMMUNICATION INFORMATION: |
| | (A) TELEPHONE: 201-594-4678 |
| | (A) TELEPHONE: 201-594-4678 (B) TELEFAX: 201-594-4720 |
| | (C) TELEX: |
| | (ix) PUBLICATION STATUS: NOT KNOWN |
| 35 | (A) AUTHORS: |
| | (B) TITLE: |
| | (C) JOURNAL: |
| | (D) VOLUME: |
| 40 | (E) ISSUE: |
| 40 | (F) PAGES: |
| | (G) DATE: |
| | (H) RELEVANT RESIDUES: |
| | (1) START: |
| 45 | (2) END: |
| | (3) BASE PAIRS: |
| | (4) AMINO ACIDS: |

55

| | (2) INFORMATION FOR SEQ ID NO: EELS-I |
|----|---|
| | (i) SEQUENCE CHARACTERISTICS: |
| | (A) LENGTH: 105 |
| - | (B) TYPE: Nucleic Acid |
| 5 | (C) STRANDEDNESS: Single |
| | (D) TOPOLOGY: Linear |
| | (ii) KIND:cDNA to genomic RNA |
| | (ii) KIND (if peptide or protein): |
| | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 10 | . (B) FRAGMENT TYPE: Internal Fragment |
| | (C) HYPOTHETICAL: |
| | |
| | |
| | (E) INDIVIDUAL |
| 15 | ISOLATE: |
| | (iv) IMMEDIATE SOURCE: |
| | (C) CLONE: |
| | (v) POSITION IN GENOME: Within Env Gene |
| | (vi) PROPERTIES OF SEQUENCE: Expresses conserved |
| 20 | antigenic determinant |
| | (viii) SEQUENCE DESCRIPTION: |
| | |
| | |
| | SEQ ID NO: EE15-1 |
| 25 | |
| 25 | |
| | 1 5 10 15 |
| | Cys Thr Arg Pro Ser Asn Asn Thr Arg Arg Gly Ile His Ile Gly |
| | TGT ACA AGA CCC AGC AAC AAT ACA AGA AGA GGT ATA CAT ATA GGA |
| | The state was too the the same same and the same and the same same same same same same same sam |
| 30 | |
| | 20 25 30 |
| | Pro Gly Arg Ala Leu Tyr Thr Thr Gly Glu Ile Thr Gly Asp Ile |
| | CCA GGG AGA GCA CTT TAT ACA ACA GGA GAA ATA ACA GGA GAT ATA |
| | our our our our our and non our our and him how our our |
| 35 | |
| | 35 |
| | |
| | Arg Arg Ala Tyr Cys |
| | AGA CGA GCA TAT TGT |
| 40 | · |
| | (4) |
| | (2) INFORMATION FOR SEQ ID NO: EE15-2 |
| | (i) SEQUENCE CHARACTERISTICS: |
| | (A) LENGTH: 105 |
| 45 | (B) TYPE: Nucleic Acid |
| | (C) STRANDEDNESS: Single |
| | (D) TOPOLOGY: Linear |
| | (ii) KIND:cDNA to genomic RNA |
| | |
| | |
| 50 | |

| | | (ii) KIND (if peptide or protein): |
|----|----------|--|
| | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | (B) FRAGMENT TYPE: Internal Fragment |
| | | (C) HYPOTHETICAL: |
| 5 | | (iii) ORIGINAL SOURCE: HIV |
| | | (E) INDIVIDUAL ISOLATE: |
| | | (iv) IMMEDIATE SOURCE: |
| | | (C) CLONE: |
| | | (v) POSITION IN GENOME: Within Env Gene |
| 10 | | (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | determinant |
| | | (viii) SEQUENCE DESCRIPTION: |
| | | |
| 15 | SEQ | ID NO: EE15-2 |
| | • | |
| | 1 | 5 10 15 |
| | | Thr Arg Pro Ser Asn Asn Thr Arg Arg Ser Ile Pro Ile Gly |
| | TGT | ACA AGG CCC AGC AAC AAT ACA AGA AGA AGT ATA CCT ATA GGA |
| 20 | | |
| | | 20 25 yr ⁽¹⁾ = 230 |
| | D | 20 25 30 Gly Arg Ala Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile |
| | | GGG AGA GCC TTT TAT ACA ACA GGA GAC ATA ATA GGA GAT ATA |
| 25 | CCA | GGG AGA GCC III IAI ACA ACA GGA GAC AIA AIA GGA GAI AIA |
| 20 | | • |
| | | 35 |
| | Are | Gln Ala His Cys |
| | _ | CAA GCA CAT TGT |
| 30 | | V.1. V.1. V.1. 1-1 |
| | | |
| | (2) | INFORMATION FOR SEQ ID NO: EE15-3 |
| | | (i) SEQUENCE CHARACTERISTICS: |
| | | (A) LENGTH: 105 |
| 35 | | (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| | | |
| | | (D) TOPOLOGY: Linear |
| | | (ii) KIND: cDNA to genomic RNA |
| | | (ii) KIND (if peptide or protein): |
| 40 | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | (B) FRAGMENT TYPE: Internal Fragment |
| | | (C) HYPOTHETICAL: |
| | | (iii) ORIGINAL SOURCE: HIV |
| 45 | | (E) INDIVIDUAL ISOLATE: |
| 45 | | (iv) IMMEDIATE SOURCE: |
| | | (C) CLONE: |
| | | |

| | | |) PR | OPE | | OF | | | | | | | serv | ed a | ntig | enic |
|-----|-----|------|-----------|------|--------------|------|------|------|--------------|--------------|----------|------|-------------|----------|---------------|-------------|
| 5 | | (vi | de ii) | | inan EQUE | | DESC | RIPT | 'ION: | SEQ | ID | NO: | | | | |
| | SEQ | ID : | NO: | EE1 | 5-3 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 10 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Arg | Ser | I1e | Pro | Ile | G1y | |
| | TGT | ACA | AGG | CCC | AGC | AAC | AAT | ACA | AGA | AGĀ | AGT | ATA | CCT | ATA | GGA | |
| 15 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1 v | Arg | Ala | | Tvr | Thr | Thr | G1 v | | T10 | T1a | C1 w | Aan | 71a | |
| | CCA | GGG | AGA | GCC | TTT | TAT | ACA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
| 20 | | | | | 25 | | | | | | | | | | | |
| -• | Arg | G15 | A1 a | ni. | 35 | | | | | | | | | | | |
| | AGA | | | | | | | | | | | | | | | |
| 0.5 | (-) | | | | | | | | | | | | | | | |
| 25 | (2) | • | |)RMA | TION | | | | | | | | | | | |
| | | | (i) | | SEQUAL (A) | ENCE | | | TERIS | | : | | | | | |
| | | | | | (B) | | LENG | | 105 Jucle | | | | | | | |
| | | | | | (c) | | | | NESS | | ingl | _ | | | | |
| 30 | | | | | (D) | | | LOGY | | ines | | . • | | | | |
| | | | (ii) |) | | : cI | | | nomi | | | | | | | |
| | | | (ii) | 1 | KIND | (if | pep | tide | or | prot | ein) | : | | | | |
| | | | | | (A) | | SEQU | ENCE | ASS | EMB I | Y ME | THOD |): C | ver1 | ар | |
| 35 | | | | | (B) | | | | TYP | | Inte | rnal | Fra | gmen | t | |
| 35 | | | | | (C) | | | | ICAL | _ | | | | | | |
| | | | (iii | , | ORIG | | | | | | | | | | | |
| | | | (iv) | | | | | URCE | AL I | SOLA | TE: | | | | _ | |
| | | | (1) | | (C) | | CLON | | · ě | | | | | | | |
| 40 | | | (v) | | POSI | | | | ME: | With | in F | nv C | 020 | | | |
| | | | (vi) | | PROP | ERTI | ES O | F SE | OUEN | CE: | Exn | ress | ee . ene | <u> </u> | rved | antigenic |
| | | | | | dete | rmin | ant | | , <u>-</u> - | | —-Р | | -5 - | CHAC | - 4 <i>ea</i> | auc. Relite |
| | | | (vii | i) | SEQU | ENCE | DES | CRIP | TION | : | | | | | | |
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| | SEQ | ע עד | 10: | EEES | 3/-1 | | | | | | | | | | | | |
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| 5 | 1 Cys TGT | Thr ACA | Arg AGA | Pro CCC | 5 Asn AAC | Asn AAC | Asn AAT | Thr ACA | Arg AGA | 10 Lys AAA | Arg AGG | Ile ATA | Thr ACT | MET ATG | 15 Gly GGA | | |
| 10 | Pro CCA | Gly GGG | Arg AGA | Val GTA | 20 Phe TTT | Tyr TAT | Thr ACA | Thr ACA | Gly GGA | 25 Gly GGA | Ile ATA | Ile ATA | Gly GGA | Asn AAT | 30 Ile ATA | | |
| 15 | Arg AGA | | | | | | | | | | | | | | | | |
| 20 | (2) | | INF | ORMA' | SEQ (A) (B) (C) | UENC | E CH LEN TYP STR | ARAC GTH: E: ANDE | TERI 10 Nuc1 DNES | STIC 5 eic S: | S: Acid Sing | | | | | | |
| 25 | | | (ii (ii | - | (D) KIN KIN (A) (B) (C) | D: c D (i | DNA f pe SEQ FRA | to g ptid UENC GMEN | enom e or E AS | PE: | NA tein LY M | ETHO | D: 1 Fr | Over agme | lap nt | | • |
| 30 | | | (ii |) | ORI (E) IMM (C) | GINA EDIA | I SO IND TE S CLO | URCE IVII OURC NE: | : HI UAL E: | V ISOL | | | | _ | | | |
| 35 | | | (v) (vi (vi | | PRO det | PERT ermi | IES nant | OF S | EQUE | | nin Ex | env pres | ses | cons | served | l antiger | ai(|
| 40 | SEQ | ID | NO: | EEE | 37–2 | | | | | | | | | | | | |

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Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Asn Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA AAT ATA GGA

| | | | | | 20 | 1 | | | | 25 | 5 | | | | 30 | | |
|----------|-------------------------------|--------------------------|--|----------------------|--|---------------------------------------|---------------------------------|------------|-----------------------------|---------------------------------------|------------|------------|------------|------------|-------------------------------|--------|-----|
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | The | G1y | Glu | ı Ile | : Ile | e Gly | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| _ | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | Arg | G1n | Ala | His | Cys | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | (2) | | | ORMA | TION | | | | | | | | | | | | |
| | | | (i) | | | UENC | | | TERI | | S: | | | | | | |
| | | | • | | (A) | | | GTH: | | _ | | | | | | | |
| 15 | | | | | (B) | | | | Nucl | | | | | | | | |
| ,,,, | | | | | (C) | | | | DNES | | Sing | le | | | | | |
| | | | | | (D) | | | OLOG | | Line | | | | | | | |
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| | | | (ii) |) | | D (1: | | | e or | | | | _ | | _ | | |
| 20 | | | | | (A) | | | | | | | | D: | | | | |
| | | | | | (B) | | | | | | Int | erna | 1 Fr | agme | a t | | |
| | | | (iii | | (C) | TRIA | | | TICA | | | | | | | | |
| | | | (111 | , | (E) | a TIAW. | | | : HI | | A TTE . | | | | | | |
| | | | (iv) | ` | | יאדת? | | OURC | UAL | IOOL | WIE: | | | | | | |
| 25 | | | (* *) | , | (C) | JU IN. | CLO | | ٠, | | | | | | | | |
| | | | (v) | | | וחזחז | V IN | | OME - | 1.7.2 4.1 | | Z | C | _ | | | |
| | | | | | | | | | Mad 64. 4 | | | | | | | | |
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| | | | (vi) | | PROI | PERT | CES (| | | | | | | conse | erved | antige | nic |
| | | | (vi) |) | PROI dete | PERT: | (ES (nant | OF S | EQUE | NCE: | | | | conse | erved | antige | nic |
| 30 | | | |) | PROI dete | PERT: | (ES (nant | OF S | | NCE: | | | | conse | erved | antige | nic |
| 30 | | | (vi) |) | PROI dete | PERT: | (ES (nant | OF S | EQUE | NCE: | | | | conse | erved | antige | nic |
| 30 | SEQ | ID N | (vi) |) | PROI dete SEQU | PERT: | (ES (nant | OF S | EQUE | NCE: | | | | conse | erved | antige | nic |
| 30 | SEQ | ID N | (vi) | i) | PROI dete SEQU | PERT: | (ES (nant | OF S | EQUE | NCE: | | | | conse | erved | antige | nic |
| | | ID N | (vi) | i) | PROI dete SEQU | PERT: | (ES (nant | OF S | EQUE | NCE: | | | | conse | erved | antige | nic |
| 30 35 | 1 | | (vi) (vii) (vii) | .i) EE37 | PROI dete SEQU 7-3 | PERT: | IES (nant E DE: | OF S | EQUEI | NCE: N: | Ex | pres | ses (| | 15 | antige | nic |
| | 1 Cys | Thr | (vi) (vii) (vii) | EE37 | PROI dete SEQU 7-3 5 Asn | PERT: PERT: PENCI | IES (nant E DE: | OF S | EQUE PTIOI Arg | NCE: | Ex | pres. | ses (| Ile | 15 Gly | antige | nic |
| | 1 Cys | Thr | (vi) (vii) (vii) | EE37 | PROI dete SEQU 7-3 5 Asn | PERT: PERT: PENCI | IES (nant E DE: | OF S | EQUE PTIOI Arg | NCE: | Ex | pres. | ses (| Ile | 15 Gly | antige | nic |
| | 1 Cys | Thr | (vi) (vii) (vii) | EE37 | PROI dete SEQU 7-3 5 Asn | PERT: PERT: PENCI | IES (nant E DE: | OF S | EQUE PTIOI Arg | NCE: | Ex | pres. | ses (| Ile | 15 Gly | antige | nic |
| 35 | 1 Cys | Thr | (vi) (vii) (vii) | EE37 | PROI dete SEQU 7-3 5 Asn AAC | PERT: PERT: PENCI | IES (nant E DE: | OF S | EQUE PTIOI Arg | NCE: N: 10 Lys AAA | Ex | pres. | ses (| Ile | 15 Gly GGA | antige | nic |
| | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) Arg AGA | EE37 | PROI dete SEQU 7-3 5 Asn AAC | PERT: PENCI JENCI Asn AAC | ES (nant E DE: Asn AAT | Thr ACA | EQUE PTIOI Arg AGA | NCE: 10 Lys AAA | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 G1y GGA | antige | nic |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) Arg AGA | EE37 Pro | PROI dete SEQU 7-3 5 Asn AAC 20 Arg | PERT: PERT: PENCI Asn AAC | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) Arg AGA | EE37 Pro | PROI dete SEQU 7-3 5 Asn AAC 20 Arg | PERT: PERT: PENCI Asn AAC | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) Arg AGA | EE37 Pro | PROI dete SEQU 7-3 5 Asn AAC 20 Arg | PERT: PERT: PENCI Asn AAC | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) Arg AGA | EE37 Pro | PROI dete SEQU 7-3 5 Asn AAC 20 Arg AGA | PERT: PERT: PENCI Asn AAC | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT Pro | Thr ACA Gly GGA | (vi) (vii) (vii) (vii) Arg AGA | Pro CCC | PROI dete SEQU 7-3 5 Asn AAC 20 Arg AGA | PERT: PENCI JENCI Asn AAC | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGA | (vi) (vii) (viii) (vi | EE37 Pro CCC Gly GGG | PROI dete SEQU 7-3 5 Asn AAC 20 Arg AGA | Asn AAC Ala GCA | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGA | (vi) (vii) (viii) (vi | EE37 Pro CCC Gly GGG | PROI dete SEQU 7-3 5 Asn AAC 20 Arg AGA | Asn AAC Ala GCA | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGA | (vi) (vii) (viii) (vi | EE37 Pro CCC Gly GGG | PROI dete SEQU 7-3 5 Asn AAC 20 Arg AGA | Asn AAC Ala GCA | Asn AAT | Thr ACA | EQUE PTION Arg AGA | NCE: 10 Lys AAA 25 Thr | Ser AGT | Ile ATA | Asn AAT | Ile ATA | 15 Gly GGA 30 Asp | antige | nic |

| | (2) | | INF | ORMA' | TION | FOR | SEQ | ID I | NO: | EE54 | -1 | | | | | | |
|------------|-----|------|------|-------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-----|
| | | | (i) | | SEQ | JENC | E CHA | ARAC' | TERI | STIC | S: | | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | | |
| _ | | | | | (B) | | TYP | E:] | Nucl | eic / | Acid | | | | | | |
| 5 | | | | | (C) | | STR | ANDE | DNES | S: 8 | Sing: | le | | | | | |
| | | | | | (D) | | TOP | OLOG | Y: 1 | Line | ar | | | | | | |
| | | | (ii |) | KINI | D: c1 | DNA · | to g | enom: | ic Ri | NA | | | | | | |
| | | | (ii |) | | | | | e or | | |): | | | | | |
| | | | | - | (A) | | SEQ | UENC: | E AS | SEMB! | LY M | ETHOI | D: (| Over | lap | | |
| 10 | | | | | (B) | | FRA | GMEN' | T TY | PE: | Inte | erna | l Fra | agmer | ı t | | |
| | | | | | (C) | | | | TICA | | | | | | | | |
| | | | (ii: | i) | ORIG | GINA | L SO | URCE | : HIV | 7 | | | | | | | |
| | | | • | · | (E) | | IND | IVID | UAL : | ISOL | ATE: | | | | | | |
| | | | (iv |) | IMMI | EDIA' | TE S | OURC | E: | | | | | | | | |
| 15 | | | • == | • | (C) | | CLO | NE: | | | | | | _ | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin 1 | Env (| Gene | | | | |
| | | | (vi |) | | | | | | | | | | cons | erved | antige | nic |
| | | | | | | | nant | | | | | | | | | | |
| | | | (vi | ii) | SEQ | JENC: | E DE | SCRI | PTIO | N: | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | |
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| | 1 | | | _ | . 5 | | | - | | 10 | _ | | | -1. | 15 | | |
| | | | | | | | | | Arg | | | | | | | | |
| | TGT | AUA | AGA | CCC | AAC | AAC | AAI | ACA | AGA | AAA | AGI | AIC | AAI | AIA | GGA | | |
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| | D | C1 | ۸ | A 1 - | | T | Th- | Th- | G1y | | T10 | 110 | C1 v | A a n | | | |
| | | - | _ | | | - | | | GGA | | | | | | | | |
| | CCA | GGG | AGA | GUA | 111 | TUT | AUA | non | Jun | GOA | AIA | AIN | GGA | GAI | nin | | |
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| 35 | | | | | 35 | | | | | | | | | | | | |
| | Arg | Ğ1n | Ala | His | | | | | | | | | | | | | |
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| 40 | (2) | | INF | ORMA' | TION | FOR | SEQ | ID 1 | NO: 1 | EEE6 | 9-1 | | | | | | |
| | | | (i) | | SEQ | JENC! | E CH | ARAC | TERI | STIC | S: | | | | | | |
| | | | | | (A) | | | GTH: | 10 | | | | | | | | |
| | | | | | (B) | | TYP | E: 3 | Nucl | eic A | Acid | | | | | | |
| 45 | | | | | (C) | | STR | ANDE | DNES | S: | Sing | le | | | | | |
| → 0 | | | | _ | (D) | | | | Y: : | | | | | | | | |
| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | NA | | | | | | |

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| 5 | | (ii) (iii) (iv) (v) (vi) (viii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenideterminant SEQUENCE DESCRIPTION: | c |
|----|-------------------------|---------------------------------|--|---|
| 15 | SEQ ID | NO: EEE | 69–1 | |
| 20 | 1 Cys Thr TGT ACA | Arg Leu AGG CTC | 5 10 15 Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA | |
| 25 | Pro Gly CCA GGG | Arg Ala AGA GCA | 20 25 30 Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA | |
| 30 | | Ala His GCA CAT | | |
| 35 | (2) | INFORMAT | TION FOR SEQ ID NO: EEE69-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment | |
| 45 | | (iii) (iv) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | |
| 50 | | | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: | : |

SEQ ID NO: EEE69-2 10 5 1 Cys Thr Arg Leu Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CTC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 10 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA 15 Arg Gln Ala Gln Cys AGA CAA GCA CAG TGT INFORMATION FOR SEQ ID NO: EE74-1 (2) 20 SEQUENCE CHARACTERISTICS: (i) LENGTH: 105 (A) TYPE: Nucleic Acid (B) STRANDEDNESS: Single (C) TOPOLOGY: Linear (D) 25 KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (ii) SEQUENCE ASSEMBLY METHOD: Overlap (A) FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 ORIGINAL SOURCE: HIV (iii) INDIVIDUAL ISOLATE: (E) IMMEDIATE SOURCE: (iv) CLONE: POSITION IN GENOME: Within Env Gene (v) 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE74-1

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Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Asn Ile Gly

TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA AAT ATA GGA

| | | | | | 20 |) | | | | 2. | 5 | | | | 30 | |
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| | Pro | G13 | Arg | Ala | a Phe | Tyr | Thi | Th | r G1 | | | e I1 | e G1v | Ast | Ile | |
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| | (2) | | INF | ORMA | TION | FOR | SEC | TD | NO: | EE74 | 1-2 | | | | | |
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| | | | \-/ | | (A) | | | GTH: | | | | | | | | |
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| 15 | | | | | (c) | | | | DNES | | | | | | | |
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| | | | (11 | , | (A) | D (i | | | | | | | _ | _ | _ | |
| 20 | | | | | (B) | | | | | | | | D: _ | | | |
| | | | | | (C) | | | | T TY | | Int | erna | 1 Fr | agme | nt | |
| | | | (ii: | 2 \ | | O TRIA | | | TICA | | | | | | | |
| | | | (11. | 1) | | GINA: | | | | | 4 mm | | | | | |
| | | | (iv | ` | (E) | | | | UAL | ISOT | ATE: | | | | | |
| 25 | | | (10 | , | | EDIA: | | | E: | | | | | | | |
| 20 | | | () | | (C) | T | CLO | | | •••• | | | | - | | |
| | | | (v) | | POS. | 1110 | A TM | GEN | OME: | Wit | hin | Env | Gene | | | |
| | | | (vi) | , | PRO | PERT | LES (| OF S | EQUE | NCE: | Ex | pres | ses (| conse | erved | antigenic |
| | | | / | | | ermin | | | | | | | | | | |
| 30 | | | (V1) | ii) | SEQU | JENCE | s des | SCRI | PT10. | N: | | | | | | |
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| | CEO | TD 1 | | | , , | | | | | | | | | | | |
| | SEQ | ז ענ | 10: | EE/ | 4-2 | | | | | | | | | | | |
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| | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Lys | Ser | Ile | Asn | Ile | Gly | |
| | TGT | ACA | AGA | CCC | AGC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | AAT | ATA | GGA | |
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| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Asp | Ile | Ile | G1y | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACC | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
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| | Arg | G1n | Ala | His | Cys | | | | | | | | | | | |
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| | (2) | | | RMAI | | | | | | | | | | | | | |
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| | | | (i) | | | JENCE | | | TERIS | | 5: | | | | | | |
| | | | | | (A) | | LEN | | 105 | | | | | | | | |
| 5 | | | | | (B) | | | | Nucle | | | | | | | | |
| | | | | | (C) | | | | DNESS | | Singl | .e | | | | | |
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| | | | (iii | L) | | INAI | | | : HIV | | | | | | | | |
| | | | | | (E) | | IND | IVID | JAL : | [SOL | ATE: | _ | | | | | |
| 15 | | | (iv) |) | | DIA | | DURCI | Ξ: | | | | | | | | |
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| | | | (v) | | | | | | ME: | | | | | | | | |
| | | | (vi) |) | | | |)F SI | SQUEN | ICE: | EXI | rese | ses c | :onse | ervea | antig | enic |
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| 20 | | | (vii | li) | SEQU | JENCE | E DES | CRII | PTION | v : | | | | | | | |
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| | CEO | TD 8 | | EE74 | 3 | | | | | | | | | | | | |
| | SEQ | ו עו | 10. | EE/- | •-3 | | | | | | | | | | | | |
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| 25 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | Asn | Ile | Gly | | |
| | тст | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | AAT | ATA | GGA | | |
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| 30 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Asp | Ile | Ile | Gly | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | AÇA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | | |
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| | Arg | G1n | Ala | His | Сув | | | | | | | | | • | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
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| 40 | (2) | | | ORMA: | TION | FOR | SEQ | ID : | NO: | EEE9 | 0-1 | | | | | | |
| | | | (i) | | SEQ | UENC | E CH | ARAC | TERI | STIC | S: | | | | | | |
| | | | | | (A) | | | GTH: | 10 | _ | | | | | | | |
| | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | | | | | | |
| 45 | | | | | (C) | | STR | ANDE | DNES | S: | Sing | 1e | | | | | |
| 40 | | | | | (D) | | TOP | OLOG | Y: | Line | ar | | | | | | |
| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | NA | | | | | | |
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| 5 | | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
|----|--------|-----------|---|
| | | (iii) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| 10 | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| | | (viii) | |
| 15 | SEQ ID | NO: EE | E90-1 |
| | • | | |
| | 1 | | 5 10 15 |
| 20 | Cys Th | r Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile His Ile Ala |
| | TGT AC | A AGA CC | C AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GCA |
| | | | 20 25 30 |
| 25 | Pro G1 | y Arg Ala | Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GG | G AGA GCA | A TTT TAC GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| | | | 35 |
| 30 | Arg Gl | n Ala His | Cys |
| | AGA CA | A GCA CAI | TGT |
| | (2) | INFORMA | ATION FOR SEQ ID NO: EE90-2 |
| 35 | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| 40 | | (ii) | KIND: cDNA to genomic RNA |
| - | | (ii) | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| | | • | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| 45 | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| | | (v) | (C) CLONE: POSITION IN GENOME: Within Env Gene |
| 50 | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| | | (viii) | |

SEQ ID NO: EE90-2 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Ala TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GCA 30 20 10 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAC GCA ACA GGA GAA ATA ATA GGA GAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE90-3 20 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid STRANDEDNESS: Single (C) (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA 25 (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV 30 INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: CLONE: (C) POSITION IN GENOME: Within Env Gene (v) PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) 35 determinant (viii) SEQUENCE DESCRIPTION: SEQ ID NO: EE90-3 40 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Ala TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GCA 45

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|----|-----|------------|--------------|------|--------|-------|-----|------|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Pro | G1y | Arg | Ala | a Phe | Tyr | A1e | Th | r Gly | 7 G1 | 1 Ile | : I1e | e Gly | / Ası | Ile | | |
| | CCA | A GGG | AGA | GCA | TTT | TAC | GCA | ACA | A GGA | A GAA | ATA | ATA | A GGA | GA? | ATA 7 | | |
| 5 | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | Arg | G1n | Ala | His | | | | | | | | | | | | | |
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| | (2) | , | (i) | | TION | | | | NO: CTERI | | | | | | | | |
| | | | (-) | | (A) | | | GTH: | | | | | | | | | |
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| 15 | | | | | (C) | | STR | ANDE | DNES | s: | Sing | 1e | | | | | |
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| | | | (11 | , | (A) | 0 (1) | | | e or E AS | | | | n. | Ozer. | 100 | | |
| 20 | | | | | (B) | | | | T TY | | | | 1 Fr | | | | |
| | | | | | (c) | | | | TICA | | | | | | | | |
| | | | (ii: | i) | | GINAI | | | : HI | | | | | | | | • |
| | | | <i>(</i> :) | | (E) | | | | UAL | ISOL | ATE: | | | | | | |
| 25 | | | (iv) | , | (C) | EDIAT | CLO | | E: | | | | | | | | |
| | | | (v) | | | TION | | | OME: | Wit | hin | Env | Cene | - | | | |
| | | | (vi) | | | | | | | | | | | | erved | antig | zenic |
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| 30 | | | (vii | li) | SEQU | JENCE | DES | SCRI | PTIO | N: | | | | | | | |
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| | SEO | ID N | 10: | EE10 | 00-1 | | | | | | | | | | | | |
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| | TCC | Thr ACA | Arg | Pro | His | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | Gly | | |
| | 100 | AUA | AGA | CCC | CAC | AAC | WWI | ACA | AGG | AAA | AGT | ATA | CAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Ala | Ile | Ile | Gly | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GCA | ATA | ATA | GGA | GAT | ATA | | |
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| | Arg | G1n | Ala | Tyr | | | | | | | | | | | | | |
| | | CAA | | | | | | | | | | | | | | | |
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| | • | | (i) | | SEQU | ENCE | CHA | RACI | ERIS | TICS | : | | | | | |
| | | | | | (A) | | LENG | TH: | 105 | | | | | | | |
| | | | | | (B) | | TYPE | | | ic A | cid | | | | | |
| 5 | | | | | (C) | | STRA | NDED | NESS | : S | ingl | е | | | | |
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| | | | (ii) |) | | | | | | c RN | | | | | | |
| | | | (ii) | | | | | | | prot | | : | | | | |
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| | | | (iv) |) | IMME | CAIG | E SC | URCE | E: | | | | | | | |
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| | | | (v) | | POSI | TION | IN | GENO | ME: | With | in E | inv (| ene | | | |
| | | | (vi) | | PROF | ERTI | ES (| OF SE | EQUEN | ICE: | Exp | rese | es c | conse | rved | antigenic |
| | | | | | | ermin | | | | | | | | | | |
| | | | (vii | ii) | SEQU | JENCE | DES | SCRII | OITS | i : | | | | | | |
| 20 | | | · | | • | | | | | | | | | | | |
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| | Cys | Thr | Arg | Pro | Gly | Asn | Asn | Inr | Arg | Lys | Der | TIE | DIS | TIE | CCA | |
| | TGC | ACA | AGA | CCC | GGC | AAC | AAT | ACA | AGG | AAA | AGI | ATA | CMI | WIW | GGA | |
| | | | | | | | | | | | | | | | | |
| 30 | | | | | 00 | | | | | 25 | | | | | 30 | |
| | _ | - 1 | Arg | 41- | 20 | There | Th- | Th. | C1++ | | Tla | T1e | G1 v | Agn | | |
| | Pro | GIY | AGA | ALA | rne | TAT | TILL | YUY | GEA | CAT | ΔΤΔ | ATA | GCA | CAT | ATA | |
| | CCA | فافافا | AGA | GUA | 111 | INI | AUA | non | GUA | 0411 | ***** | | •••• | | | |
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| | AGA | CAA | GUA | CAI | 101 | | | | | | | | | | | |
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| 40 | (2) | | INF | ORMA | TION | FOR | SEO | ID | NO: | EE10 | 0-3 | | | | | |
| | (-/ | | (i) | | | | | | | STIC | | | | | | |
| | | | (-/ | | (A) | | | GTH: | | | | | | | | |
| | | | | | (B) | | TYP | | | eic. | Acid | | | | | |
| | | | | | (c) | | | | DNES | | Sing | _ | | | | |
| 45 | | | | | (D) | | | | | Line | _ | | | | • | |
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| 10 | | (v |) i) | (C) POS PRO | ITIO PERT | CLO N IN | NE: GEN OF S | OME: | Wit NCE: | hin Ex | Env pres | Gene ses | _ cons | erved | antigenic |
| | | (v | iii) | | | | | PTIO | N: | | | | | | |
| 15 | SEQ I | D NO: | EE1 | 00-3 | | | | | | | | | | | |
| | 1 | | | 5 | | | | | 10 | | | | | 15 | |
| 20 | Cys T TGC A | hr Arg | Pro A CCC | His CAC | Asn AAC | naA TAA | Thr ACA | Arg AGG | Lys AAA | Ser AGT | Ile ATA | His CAT | Ile ATA | Gl v | |
| | 1 | | | 5 | | | | | 10 | | | | | 15 | |
| 25 | Pro G CCA G | ly Arg GG AGA | Ala GCA | Trp TGG | Tyr TAT | Thr ACA | Thr ACA | Gly GGA | Ala GCA | Ile ATA | Ile ATA | G1y GGA | Asp GAT | Ile ATA | · |
| | Arg G | ln Ala | Tvr | 35 Cvs | | | | | | | | | | | |
| 30 | AGA C | | | | • | | | | | | | | | | |
| 35 | (2) | INF | ORMA? | SEQU (A) | ENCE | CHA LENG | RACI | ERIS 105 | TICS | : | | | | | |
| | | (ii |) | (B) (C) (D) KIND | | STRA TOPO | NDEL | NESS | : S inea | ingl r | . e | | | | |
| 40 | | (ii | - | KIND (A) | (if | pep SEQU FRAG | tide ENCE MENT | or ASS | prot EMBL E: | ein) Y ME Inte | THOD rnal | Fra | verl gmen | t | |
| 45 | | (ii | i) | ORIG | INAL | SOU | RCE: | HIV | | | | | | | |
| | | (iv | | IMMEI (C) | DIAT | E SO CLON | URCE E: | : | | | | | | | |
| 5 <i>0</i> | | (v) (vi |) - | POSIT PROPI deter | ERTI | ES O | GENO F SE | ME: | With | in Exp | nv G ress | ene es c | onse | rved a | antigenic |
| | | (vi | | SEQUE | | | CRIP | TION | : | | | | | | |

SEQ ID NO: EE125-1

1 5 10 15
Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Gly Ile His Leu Gly
TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA GGT ATA CAT CTA GGA

20 25 30
Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile
CCA GGG AGA GCA TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA

Arg Gln Ala His Cys AGA CAA GCA CAT TGT

- (2) INFORMATION FOR SEQ ID NO: EE125-2 20 SEQUENCE CHARACTERISTICS: (i) (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single TOPOLOGY: Linear (D) 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (E) (iv) IMMEDIATE SOURCE:
- (v) POSITION IN GENOME: Within Env Gene
 (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant
 (viii) SEQUENCE DESCRIPTION:

40 SEQ ID NO: EE125-2

1 5 10 15
Cys Thr Arg Pro Asn Asn Thr Arg Lys Gly Ile His Leu Gly
TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA GGT ATA CAT CTA GGA

CLONE:

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| | | | | | 20 | | | | | 2. | | | | | 30 | | |
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| | Pro | G1; | y Ly | s Ala | a Phe | е Туг | Ala | a Thi | r G1 ₃ | y G1: | ı Ile | 2 I1e | e G13 | Asp | I1e | | |
| | CCA | A GG | A AA | A GCA | TT: | CAT 1 | GCA | A ACA | A GGA | A GAA | ATA | ATA | GGA | GAT | ATA | | |
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| | Arg | G11 | n Ala | a Hia | Сує | 3 | | | | | | | | | | | |
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| | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | l. | | | | | |
| 15 | | | | | (c) | | | ANDE | | | Sing | | | | | | |
| | | | | | (D) | | | | | Line | _ | | | | | | |
| | | | (ii | .) | KIN | D: c | | | | | | | | | | | |
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| 20 | | | | | (B) | | | GMEN | | | | | | agmei | | | |
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| 05 | | | (iv | ·) | IMM | EDIA' | | | | | | | | | | | - |
| 25 | | | | | (C) | | CLO | NE: | | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | _ | | | |
| | | | (vi |) | PRO | PERT: | IES | OF S | EQUE | NCE: | Ex | pres | ses (| conse | rved | anti | genic |
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| 30 | | | (vi | ii) | SEQ | UENCI | E DE | SCRI | PTIO | N: | | | | | | | |
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| | SEQ | ID : | NO: | EEE | 125- | 3 | | | | | | | | | | | |
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| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | GGT | ATA | CAT | CTA | GGA | | |
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| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Glu | I1e | Ile | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
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| | (2) | | INFO | RMAT | ION | FOR | SEQ | ID N | o: E | E131 | -1 | | | | | |
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| | | | (i) | | SEQU | ENCE | CHA | RACT | | | : | | | | | |
| | | | | | (A) | | LENG | | 105 | | | | | | | |
| | | | | | (B) | | | | | ic A | | | | | | |
| 5 | | | | | (C) | | | NDED | | : S | ingl | e | | | | |
| | | | | | (D) | | TOPO | LOGY | : L | inea | | | | | | |
| | | | (ii) | | KIND | : cD | NA t | o ge | nomi | c RN | A | | | | | |
| | | | (ii) | | KIND | (if | pep | tide | or | prot | ein) | : | | | | |
| | | | \ , | | (A) | | SEQU | ENCE | ASS | EMBL | Y ME | THOD | : 0 | ver1 | ap | |
| 10 | | | | | (B) | | FRAG | MENT | TYP | E: | Inte | rnal | Fra | gmen | t | |
| | | | | | (c) | | HYPO | THEI | ICAL | ·: _ | | | | | | |
| | | | (iii | .) | | INAL | SOU | IRCE: | HIV | ' | | | | | | |
| | | | , | • | (E) | | | | | SOLA | TE: | | | | | |
| | | | (iv) |) | IMME | CAIG | E SC | URCE | : | | | | | | | |
| 15 | | | (, | | (C) | | CLON | IE: | | | | | | | | |
| | | | (v) | | POSI | TION | IN | GENO | ME: | With | in E | nv (| ene | | | |
| | | | (vi) | | PROF | ERTI | ES C | F SE | QUEN | ICE: | Exp | rese | es c | onse | rved | antigenic |
| | | | (/ | ' | | rmin | | | • | | | | | | | |
| | | | (vii | ii) | | JENCE | | CRIE | TION | 1: | | | | | | |
| 20 | | | ` | / | | | | | | | | | | | | |
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| | SEO | ID i | 10: | EE1 | 31-1 | | | | | | | | | | | |
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| | Cvs | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Ser | Lys | Arg | Ile | Ser | Ile | Gly | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGC | AAA | AGA | ATA | TCT | ATA | GGA | |
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| | Pro | G1y | Arg | Ala | Phe | Arg | Ala | Thr | Arg | Ile | Ile | Gly | Asp | TIE | Arg | |
| | CCA | GGG | AGA | GCT | TTT | CGT | GCA | ACA | AGA | ATA | ATA | GGA | GAT | ATA | AGA | |
| | | | | | | | | | | | | | | | | |
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| | G1n | Ala | His | Cys | | | | | | | | | | | | |
| | CAA | GCA | CAT | TGT | • | | | | | | | | | | | |
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| 40 | (2) | | | | TION | FOR | SEQ | ID | NO: | EE13 | 1-2 | | | | | |
| | | | (i) | | | | | | | STIC | S: | | | | | |
| | | | · | | (A) | | | GTH: | | | | | | | | |
| | | | | | (B) | | | | | eic | | | | | | |
| | | | | | (C) | | | ANDE | | | Sing | le | | | | |
| 45 | | | | | (D) | | | OLOG | | Line | | | | | | |
| | | | (ii | .) | KIN | D: c | DNA | to g | enon | ic R | NA | | | | | |
| | | | (ii | .) | KIN | ID (i | f pe | ptid | le or | pro | tein | 1): | | | _ | |
| | | | | | (A) | | | | | SEMB | | | | 0ver | - | |
| | | | | | (B) |) | FRA | GMEN | T T | PE: | Int | erna | ıl Fı | agme | ent | |
| 50 | | | | | | | | | | | | | | | | |

| | | | (ii | .i) | (C) ORI (E) | GINA | L SC | OTHE | : HI | V | | | | | | |
|----|-----|------|------------|----------|-------------------|------|-------------|--------------|------------|-----------|------------|------------|------------|-------|-------------|-------------|
| 5 | | | (iv |) | | EDIA | TE S | OURC | | 1201 | AlE: | | | | | |
| | | | (v) | | | | CLO N IN | | OME: | Wit | hin | Env | Gene | - | | |
| | | | (vi | | PRO | PERT | | OF S | | | | | | | erved | antigenic |
| 10 | | | (vi | ii) | | | | SCRI | PTIO | N: | | | | | | |
| | SEQ | ID : | NO: | EE1 | 31-2 | | | | | | | | | | | |
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| 15 | 1 | ms | A | D | 5 | | | | _ | 10 | | | | | 15 | |
| | TGT | ACA | AGA | CCC | Asn | Asn | Asn AAT | Thr ACA | Ser AGT | Lys | Arg AGA | Ile ATA | Ser TCT | Ile | Gly GGA | |
| | | | | | | | | | | | | | 101 | ***** | 0011 | |
| 20 | | | | | 20 | | | | | 25 | | | | | 20 | |
| | Pro | G1v | MET | Ala | | Arg | A1a | Thr | Aro | 25 Tle | Tle | Glv | Asp | 716 | 30 Arg | |
| | CCA | GGG | ATG | GCA | TTT | CGT | GCA | ACA | AGA | ATA | ATA | GGA | GAT | ATA | AGA | |
| | | | | | | | | | | | | | | | | |
| 25 | | | | | 35 | | | | | | | | | | | |
| | | | His CAT | | | | | | | | | | | | | |
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| 30 | (2) | | INFO | RMA T | CION | FOR | SEQ | ID N | 10: E | E131 | .–3 | | | | | |
| | | | (i) | | | ENCE | CHA | ARACI | ERIS | TICS | : | | | | | |
| | | | | | (A) | | LENC | | 105 | | | | | | | |
| | | | | | (B) | | | E: N | | | | | | | | |
| 35 | | | | | (C) | | | NDEI LOGY | | | ingl | Le | | | | |
| | | | (ii) | l | KIND | | | | | | | | | | | |
| | | | (ii) | | KIND | | | | | | |): | | | | |
| | | | | | (A) | | | ENCE | | | | |): O | ver1 | ар | |
| 40 | | | | | (B) | | | MENI | | | | | Fra | | | |
| 40 | | | | | (C) | | | THET | | | | | | | | |
| | | | (iii |) | ORIG | | | | | | | | | | | |
| | | | (iv) | | (E) | | | VIDU | | SOLA | TE: | | | | | |
| | | | (10) | | (C) | | CLON | URCE | • | | | | | | | |
| 45 | | | (v) | | POSI | | | | ME: | With | in F | nv C | ene | | | |
| | | | (vi) | | | | | | | | | | | ០១៩៩ | rved : | antigenic |
| | | | • | | dete | rmin | ant | | | | P | | | JDC | | |
| | | | (vii | i) | SEQU | ENCE | DES | CRIP | TION | : | | | | | | |
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SEQ ID NO: EE131-3 10 1 Cys Thr Arg Pro Asn Asn Asn Thr Ser Lys Arg Ile Ser Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGC AAA AGA ATA TCT ATA GGA 10 Pro Gly Arg Ala Phe Arg Ala Thr Arg Ile Ile Gly Asp Ile Arg CCA GGG AGA GCA TTT CGT GCA ACA AGA ATA ATA GGA GAT ATA AGA 35 15 Gln Ala His Cys CAA GCA CAT TGT INFORMATION FOR SEQ ID NO: EEE149-1 (2) 20 (i) SEQUENCE CHARACTERISTICS: LENGTH: 105 (A) TYPE: Nucleic Acid (B) (C) STRANDEDNESS: Single TOPOLOGY: Linear (D) 25 KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (ii) SEQUENCE ASSEMBLY METHOD: Overlap (A) FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 ORIGINAL SOURCE: HIV (iii) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (iv) CLONE: (C) POSITION IN GENOME: Within Env Gene (v) 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EEE149-1 5 10

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Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Gly Ile Ser Ile Gly

TGT ACA AGA CCC AAC AAC AAT ACA AGA AGG GGT ATA AGT ATA GGA

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| | Pre | o G13 | y Ar | g Ala | a Phe | e Val | Ty | r A1 | a Th | r Ly | s Il | e Ile | e Gly | у Авр | Ile | | |
| | CC | A GG | G AG | A GCA | A TT | GTI | TA | r gc | A AC | AA A | A AT | A ATA | A GG/ | A GAT | ATA | | |
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| | (2) |) | TNI | FORMA | TION | FOR | SEC | מדו | NO. | EE1/ | a_2 | | | | | | |
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| | | | \-/ | , | (A) | | | GTH: | | | | | | | | | |
| 15 | | | | | (B) | | TYP | | Nucl | - | Acid | ı | | | | | |
| 15 | | | | | (c) | | | | DNES | | Sing | | | | | | |
| | | | | | (D) | | | OLOG | | Line | • | | | | | | |
| | | | (ii | | KIN | D: c | DNA | to g | enon | ic R | NA | | | | | | |
| | | | (ii | .) | KIN | D (i | f pe | ptid | le or | pro | tein | ·): | | | | | |
| 20 | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | Over: | lap | | |
| | | | | | (B) | | | | IT TY | | Int | erna | 1 Fr | agme | at | | |
| | | | | | (C) | | | | TICA | | | | | | | | |
| | | | (ii | 1) | | GINA | | | | | | | | | | | |
| | | | (iv | . 1 | (E) | EDIA: | | | UAL | ISOL | ATE: | | | | | | |
| 25 | | | (10 | , | (C) | EDIA. | CLO | | E: | | | | | | | | |
| | | | (v) | | | ITIO | | | OMF . | Wi+ | hin | For | C | _ | | | |
| | | | (vi | | | | | | | | | | | | | anti | |
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| 30 | | | (vi | ii) | | JENCE | | SCRI | PTIO | N: | | | | | | | |
| 30 | | | | | · | | | | | | | | | | | | |
| | SEQ | ID I | NO: | EE1 | 49-2 | | | | | | | | | | | | |
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| | TOT | Inr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Gly | Ile | Ser | Ile | Gly | | |
| | 161 | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AGG | GGT | ATA | AGT | ATA | GGA | | |
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| 40 | Pro | G1v | Arg | Ala | | Va 1 | Tvr | A1 a | Thr | | T1. | T1. | C1 | Asp | 30 T1 a | | |
| | CCA | GGG | AGA | GCA | TTT | GTT | TAT | GCA | ACA | AAA | ATA | ATA | GCA | GAT | ATA | | |
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| | | | (i) | | SEQU | JENCE | CHA | ARAC' | CER IS | STICS | : | | | | | |
| | | | | | (A) | | LEN | TH: | 105 | , | | | | | | |
| | | | | | (B) | | TYPE | E: 1 | Nuc1e | eic A | cid | | | | | |
| 5 | | | | | (C) | | STRA | MDEI | DNESS | S: S | ingl | .e | | | | |
| | | | | | (D) | | TOP | LOG | : I | Lines | ır | | | | | |
| | | | (ii) |) | | | | | | c RN | | | | | | |
| | | | (ii) |) | KINI | (if | | | | prot | | | | | | |
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| 10 | | | | | (B) | | FRAC | GMEN? | TYI | E: | Inte | rnal | . Fra | agmer | ıt | |
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| | | | (iii | i) | ORIC | INAI | | JRCE | | | | | | | | |
| | | | | | (E) | | IND | IVID | JAL 3 | SOL | TE: | | | | | |
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| 15 | | | | | (C) | | CLO | | | | | | | - | | |
| | | | (v) | | | | | | | With | | | | | | |
| | | | (vi) |) | | | | OF SI | EQUE | ICE: | Exp | press | ses o | conse | erved | antigenic |
| | | | | | | ermin | | | | _ | | | | | | |
| | | | (vi | ii) | SEQU | JENCE | E DES | SCRI | STIO | v: | | | | | | |
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| | SEQ | ID 1 | 10: | EE14 | 49-3 | | | • | | | | | | | | |
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| | | Thr | Ara | Pro | | Aen | Aen | Thr | Aro | | G1v | Ile | Ser | Ile | G1v | |
| | ТСТ | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AGG | GGT | ATA | AGT | ATA | GGA | |
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| | Pro | G1y | Arg | Ala | Phe | Va1 | Tyr | Ala | Thr | Lys | Ile | Ile | Gly | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | GTT | TAT | GCA | ACA | AAA | ATA | ATA | GGA | GAT | ATA | |
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| 35 | | | | | 35 | | | | | | | | | | | |
| | Arg | Gln | Ala | His | Сув | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | |
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| 40 | (0) | | 731T | ODMA | TET ON | EOD | CEO | TD. | NO. | erri | 50 1 | | | | | |
| 40 | (2) | | | OKMA | TION | | | | | STIC | | | | | | |
| | | | (i) | | (A) | | | GTH: | 10 | | ٥. | | | | | |
| | | | | | (B) | | | | | eic A | Acid | | | | | |
| | | | | | (C) | | | ANDE | | | Sing | | | | | |
| 45 | | | | | | | | | | Line. | _ | TE | | | | |
| 40 | | | (22 | ` | (D) | | | OLOG | | ic R | | | | | | |
| | | | (ii (ii | | | | | | | pro | | ١. | | | | |
| | | | (11 | , | (A) | | | | | SEMB | | | D• | 0ver | lan | |
| | | | | | (B) | | • | GMEN | | | | | | agme | | |
| 50 | | | | | (1) | | 1 1/73 | OLLINY. | _ 11 | | **** | ~ | | ~Pmc | | |

| | | (iii) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
|----|---------|------------------------|---|
| 5 | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | | determinant |
| 10 | | (viii) | SEQUENCE DESCRIPTION: |
| | SEQ ID | NO: EE | E159-1 |
| 15 | | | |
| 15 | 1 | | 5 10 15 |
| | Cys Th | r Arg Pro | Ser Asn Asn Thr Arg Lys Ser Ile His Ile Gly |
| | TGT AC | A AGA CC | C AGC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 20 | | | 20 25 30 |
| | Pro Gl | v Arg Ala | Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GG | G AGA GCA | TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
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| | _ | n Ala His A GCA CAI | |
| 30 | 4.5.3 | | |
| | (2) | | TION FOR SEQ ID NO: EEE159-2 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| 35 | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 40 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: |
| 45 | | (v) | (C) CLONE: |
| | | (v) (vi) | PROPERTIES OF SECUENCE: France Gene |
| | | (**) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| | | (viii) | |
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| JU | | | |

SEQ ID NO: EEE159-2

| 5 | 1 Cys 7 TGT A | Thr ACA | Arg AGA | Pro CCC | 5 Asn AAC | Asn AAC | Asn AAT | Thr ACA | Arg AGG | 10 Lys AAA | Ser AGT | Ile ATA | Pro CCT | Ile ATA | 15 Gly GGA | |
|----|---------------------|------------|--------------|------------|-----------------------|----------------|-----------------------|---------------------------------|---------------------------------|----------------------------|--------------------|------------|------------|------------|------------------|-------------|
| 10 | Pro C | Gly GGG | Arg AGA | Ala GCA | 20 Phe TTT | Tyr TAT | Ala GCA | Thr ACA | Gly GGA | 25 Asp GAC | Ile ATA | Ile ATA | Gly GGA | Asp GAT | 30 Ile ATA | |
| 15 | Arg (| | | | | | | | | | | | | | | |
| 20 | (2) | | INFO | RMAT | | JENCI | LENG TYPI | | reri: 10! Nucle | STIC: 5 eic <i>A</i> | S: Acid | le | | | | |
| 25 | | | (ii) (ii) | | (D) KINI KINI (A) (B) |): cI) (ii | ONA PER | GMEN' | enom: e or E AS: I TY! | pro SEMB: PE: | NA tein LY M | ETHO! | | Over: | | |
| 30 | | | (iii | | (E) IMMI | | L SOU IND TE SO | OTHE: URCE IVIDI OURCI | : HI | V | ATE: | | | | | |
| 35 | | | (v) (vi) | | PRO | PERT: | IES (nant | GEN | EQUE | NCE: | | | | | erved | antigenic |
| 40 | SEQ | ID N | 10: | EE15 | 59–3 | | | | | | | | | | | |
| 45 | 1 TGT / | | | | | | | | | | | | | | | |
| 50 | CCA | GGG | AGA | GCA | 20 TTT | TAT | GCA | | | | ATA | | | GAT | | |

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Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile

35 AGA CAA GCA CAT TGT Arg Gln Ala His Cys 5 (2) INFORMATION FOR SEQ ID NO: EE164-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid 10 (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA KIND (if peptide or protein): (ii) (A) SEQUENCE ASSEMBLY METHOD: Overlap 15 (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: 20 (C) CLONE: (v) POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 25 SEQ ID NO: EE164-1 30 10 Cys Thr Arg Pro Ser Asn Asn Thr Ser Lys Gly Ile His Ile Gly TGT ACA AGA CCC AGC AAC AAT ACA AGC AAA GGT ATA CAT ATA GGA 35 20 25 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Asn Ile Ile Gly Asn Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA AAT ATA ATA GGA AAT ATA 40 Arg Gln Ala His Cys AGA CAA GCA CAT TGT 45 (2) INFORMATION FOR SEQ ID NO: EE164-2 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid 50

| | | | | | (C) | | STR | ANDE: | DNES | S: 3 | Sing | le | | | | | | |
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| | | | | | (D) | | TOP | OLOG | Y: : | Line | ar | | | | | | | |
| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | AN | | | | | | | |
| 5 | | | (ii |) | KIN | D (i: | f pe | ptid | e or | pro | tein |): | | | | | | |
| | | | | | (A) | | SEQ | UENC | E AS | SEMB: | LY M | ETHO! | D: (| Over | lap | | | |
| | | | | | (B) | | FRA | GMEN' | T TY | PE: | Int | erna. | l Fr | agme | nt | | | |
| | | | | | (C) | * | HYP | OTHE | TICA | L: | | | | | | | | |
| | | | (ii | i) | | GINA: | L SO | URCE | : HI | V | | | | | | | | |
| 10 | | | • | • | (E) | | IND | IVID | UAL | ISOL | ATE: | | | | | | _ | |
| | | | (iv |) | | EDIA' | TE S | OURC | E: | | | | | | | | | |
| | | | | • | (C) | | CLO | NE: | | | | | | _ | | | | |
| | | | (v) | | | ITIO | N IN | GEN | OME: | With | hin : | Env | Gene | | | | | |
| | | | (vi | | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | ant: | igeni | .c |
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| | SEQ | ID I | NO: | EE1 | 64-2 | | | | | | | | | | | | | |
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| | Cys | Thr | Arg | .Pro | Asn | Asn | Asn | Thr | Ser | Arg | G1y | Ile | His | Ile | Gly | | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGC | AGA | GGT | ATA | CAT | ATA | GGA | | | |
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| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | AAT | ATA | AIA | GGA | GAT | AIA | | | |
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| | (2) | | INE | ODMA' | TION | FOR | SEO | TD . | NO · | EEE1 | 64-3 | | | | | | | |
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| | | | (1) | | (A) | | | GTH: | | | • | | | | | | | |
| 40 | | | | | (B) | | TYP | | | eic . | Acid | | | | | | | |
| 40 | | | | | (c) | | | | | S: | | | | | | | | |
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| | | | (ii |) | | D: cl | | | | ic RI | | | | | | | | |
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| 45 | | | • | - | (A) | • | | | | SEMB: | | | D: (| 0ver | lap | | | |
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| | | | | | (c) | | | | TICA | | | | | | | | | |
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| | | | (ii | i) | ORI (E) | GINA | | URCE | | | ATE: | | | | | |
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| 5 | | | (v) (vi | | POS PRO | PERT | N IN IES | GEN OF S | | | | | Gene ses | - cons | erved | antigenic |
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| | SEQ | ID 1 | NO: | EEE | 164– | 3 | | | | | | | | | | • |
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| 15 | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Lys | G1y | Ile | His | Ile | G1y | |
| | TGT | ACA | AGA | CCC | AGC | AAC | AAT | ACA | AGA | AAA | GGT | ATA | CAT | ATA | GGA | |
| | | | | | 20 | | | | | 0.5 | | | | | 20 | |
| 20 | Pro | G1v | Arg | A1a | Phe | Tvr | Thr | Thr | G1v | 25 Gln | Ile | Ile | G1 v | Asp | 30 T1e | |
| | CCA | GGG | AGĂ | GCA | TTT | TAT | ACA | ACA | GGA | CAA | ATA | ATA | GGA | GAT | ATA | |
| | | | | | 25 | | | | | | | | | | | |
| 25 | Aro | Gin | Ala | Hie | 35 Cve | | | | | | | | | | | |
| | | | GCA | | | | | | | | | | | | | |
| | (2) | | TME | DMA. | r a on | EOD | O.F.O. | TD 1 | · | | | | | | | |
| 30 | (4) | | (i) | KMA. | CION SEQU | | | ID I | | | | | | | | |
| | | | • | | (A) | | LENC | | 105 | | | | | | | |
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| 35 | | | (ii) |) | KIND | : cD | | | | | | | | | | |
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| | | | | | (A) (B) | | SEQU | MENT | ASS | | | |): 0 | | | |
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| 40 | | | (iii | .) | ORIG | | | | | . – | | | | | | |
| | | | | | (E) | | | VIDU | | SOLA | TE: | | | | | |
| | | | (iv) | l | IMME (C) | | | | : | | | | | | | |
| | | | (v) | | POSI | | CLON IN | | ME: | With | in F | nv C | ene | | | |
| 45 | | | (vi) | | | | | | | | | | | onse | rved | antigenic |
| | | | (vii | | dete SEQU | rmin | an t | | | | • | _ | _ | | | |
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SEQ ID NO: EE179-1

5 10 5 1 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 30 25 20 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asn Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA AAT ATA 15 Arg Gln Ala His Cys AGA CAA GCA CAC TGT INFORMATION FOR SEQ ID NO: EE179-2 (2) 20 SEQUENCE CHARACTERISTICS: (i) LENGTH: 105 (A) TYPE: Nucleic Acid (B) STRANDEDNESS: Single (C) TOPOLOGY: Linear (D) 25 KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (ii) SEQUENCE ASSEMBLY METHOD: Overlap (A) FRAGMENT TYPE: Internal Fragment (B) HYPOTHETICAL: (C) 30 ORIGINAL SOURCE: HIV (iii) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (vi) CLONE: (C) POSITION IN GENOME: Within Env Gene (v) 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE179-2 10 5 Cys Thr Arg Pro Ser Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AGC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA

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| | Pro | o G1 | y Ar | g Al | a Ph | e Ty | r Th | r Th | r Gl | y Gl | u II | e Il | e G1 | u Ası | n Ile | |
| | CCA | A GG | G AG | A GC | A TT | TA: | r AC | A AC | A GG | A GA | A AT | A AT | A GA | A AA | ATA 1 | |
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| 15 | | | | | (B) |) | TYE | E: | Nucl | eic | Acid | i | | | | |
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| 25 | | | • | • | (C) | | CLO | | | | | | | | | |
| | | | (v) |) | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | | | |
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| | | | , . | | det | ermi | nant | | | | | | | | | |
| 30 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | G1v | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | |
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| | CCA | CCC | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Glu | Ile | Ile | Gly | Asn | Ile | |
| | CCA | GGG | MGA | GCA | TTT | IAI | ACA | ACA | GGA | GAA | ATA | ATA | GGA | AAT | ATA | |
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| | (2) | | INF | ORMA' | TION | FOR | SEQ | ID | NO: | EEE18 | 81-1 | | | | | | |
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| | 1 | | (i) | | SEQ | UENC | E CH | ARAC' | TERI | STIC | s: | | | | | | |
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| 5 | | | | | (B) | | | | Nuc1 | | | _ | | | | | |
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| | | | (ii | , | (A) | J (1: | | | e or | | |): ETHO | n• (| Brow' | 1 0 0 | | |
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| 15 | | | | | (C) | | CLO | _ | | | | | | _ | | | |
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| 40 | (2) | | TNF | TRMA" | TION | FOR | SEO | י חד | ۷ 0 - 1 | TF181 | 1_2 | | | | | | |
| | (-/ | | (i) | J14 41. | | | | | TER I | | | | | | | | |
| | | | (-, | | (A) | | | | 10 | | | | | | | | |
| | | | | | (B) | | | | Vuc1 | | Acid | | | | | | |
| | | | | | (C) | | | | ONES | | Sing | le | | | | | |
| 45 | | | | | (D) | | | DLOG | | Linea | | | | | | | |
| | | | (ii |) | KINI | o: cl | DNA 1 | to ge | enom | ic Ri | AV | | | | | | |
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| 5 | | (| (ii) (iii) | (A) (B) (C) ORIGI (E) | FRA HYI NAL SC INI | QUENC AGMEN POTHE OURCE OIVID | E AS T TY TICA : HI UAL | SEMB PE: L: V | LY M Int | ETHO | | | | · - | |
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| 10 | | (| iv) v) vi) | (C) POSIT | ION IN | NE: GEN | OME: | | | | | | emred | antigeni | _ |
| | | | viii) | deter | minant NCE DE | : | | | . | P | | | crvcu | ancigeni | C |
| 15 | SEQ 1 | ID NO | : EE | 181–2 | | | | | | | | | | | |
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| 20 | | | | Asn A | | | | Lys | | | | | Gly | | |
| | | | | 20 | | | | 25 | | | | | 30 | | |
| 25 | Pro G CCA G | Sly A | rg Ala GA GCA | Phe T | yr Thr AT ACA | Thr ACG | G1y GGA | G1u | Ile ATA | Ile ATA | Gly GGA | Asn TAA | Ile | | |
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| 30 | | | la His CA CAI | | | | | | | | | | | | |
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| 35 | | (: | i) | (A) (B) (C) | TYPI STRA | GTH: E: N ANDEI | 105 Jucle NESS | ic A : S | cid ingl | . e | | | | | |
| 40 | | | ii) ii) | KIND (A) | cDNA t | otide JENCE | nomi or ASS | prot EMBL | A ein) Y ME | THOD | | | | | |
| 45 | | | iii) | (C) ORIGIN (E) | HYPO NAL SOU IND: | OTHEI URCE: IVIDU | ICAL HIV | ; : – | · | | . rra | agmen | | | |
| | | (1 | lv) 7) | (C) POSIT | CLONION IN | NE: GENC | ME: | | | | | - | · | . • | |
| 50 | | | ri) viii) | detern | ninant | | | | Ежр | ress | es c | onse | rved | antigenic | : |
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| | SEQ ID | NO. EEI | .01-3 |
|----|-------------------------|----------------------|--|
| 5 | 1 Cys Thr TGT ACA | Arg Pro | 5 10 15 O Asn Asn Thr Arg Lys Ser Ile His Ile Gly C AAC AAT AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 10 | | | 20 25 30 a Phe Tyr Thr Thr Gly Gly Ile Ile Gly Asp Ile A TTT TAT ACA ACG GGA GGA ATA ATA GGA GAT ATA |
| 15 | | Ala His A GCA CAT | |
| 20 | (2) | (i) | ATION FOR SEQ ID NO: EE211-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid |
| 25 | | (ii) (ii) | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 30 | | (iii) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| 35 | | (iv) (v) (vi) | IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenideterminant |
| 40 | SEQ ID | (viii) | SEQUENCE DESCRIPTION: 211-1 |

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Cys Thr Arg Pro Asn Asp Asn Thr Arg Arg Ser Ile Asn Ile Gly TGT ACA AGA CCC AAC GAC AAT ACA AGA AGA AGT ATA AAT ATA GGA

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| | Pre | o G1 | y Ar | g Ala | a Phe | Э Туг | Ala | a Th | r G1 | y G1: | ı I1 | e Ile | e Gly | Asn | Ile | | | |
| | CCA | A GG | G AG | A GC | C TT | CAT 7 | GCA | A AC | A GG | A GAA | ATA | A ATA | GGA | AAT | ATA | | | |
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| | | | (i) | , | | UENC | | | | | s: | | | | | | | |
| | | | | | (A) | | | GTH: | | _ | | | | | | | | |
| 15 | | | | | (B) | | TYP | | | eic | | | | | | | | |
| | | | | | (D) | | | | DNES | | Sing | те | | | | | | |
| | | | (ii | 1 | | D: c | | OLOG | | Line | | | | | | | | |
| | | | (ii | | KIN | D. (i | DINA F De | ntid | enon | TC K | toin MA | ۸. | | | | | | |
| | | | (11 | . / | (A) | | | | | | | | D | Over] | | | | |
| 20 | | | | | (B) | | | | | PE: | | | | agmer | | | | |
| | | | | | (c) | | | | TICA | | 1111 | CINA | I II. | aRmer | 10 | | | |
| | | | (ii | i) | | GINA | | | | | | | _ | | | | | |
| | | | , | -, | (E) | | | | | ISOL | ATE: | | | | | | | |
| 05 | | | (iv |) | | EDIA' | | | | | | ••• | | | | | - | |
| 25 | | | | | (C) | | CLO | | | _ | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env (| Gene | _ | | | | |
| | | | (vi |) | PRO | PERT: | ES (| OF S | EQUE | NCE: | Ex | pres | ses (| conse | rved | ant | igeni | ic |
| | | | | | det | ermin | ant | | | | | - | | | | | | |
| 30 | | | (vi | ii) | SEQ | UENCI | DE | SCRI | PTIO | N: | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | SEQ | ID : | NO: | EEE: | 211- | 2 | | | | | | | | | | | | |
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| 35 | 1 | | | | - | | | | | | | | | | | | | |
| | _ | TL | A | D | 5 | A | | | | _ 10 | _ | | _ | _ | 15 | | | |
| | TCT | TUL | ACA | rro | ASD | ASD | AST | Thr | Arg | Lys | Ser | Ile | Ser | Leu | Gly | | | |
| | 161 | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | TCT | CTA | GGA | | | |
| | | | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | 25 | | | | | 20 | | | |
| | Pro | G1 v | Ser | م 1 A | | Tur | Δ1a | Th∽ | C1 11 | | T1. | T1- | C1 | Asp | 30 | | | |
| | CCA | GGG | AGT | GCA | ATT | TAT | GCA | ACA | GCA | CAC | ATA | ATA | CCV | GAT . | 116 | | | |
| | | | | 0011 | **** | 1111 | JUA | non | GGA | GAC | VIV | WIW | GGM | GAI. | MIM | | | |
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| 45 | | | | | 35 | | | | | | | | | | | | | |
| | Arg | Gln | Ala | His | | | | | | | | | | | | | | |
| | | | | CAT | | | | | | | | | | | | | | |
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| 5 0 | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | |

| | (2) | | INF | ORMA | TION | FOR | SEC | ID | NO: | EE21 | 5-1 | | | | | | |
|----|-----|-------------|------------|--------|------|-------|-------|-------|------------|-------------|-------|------|------|------|-------|---------|----|
| | | | (i) | | | | | | TERI | | | | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | | |
| | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | | | | | | |
| 5 | | | | | (C) | | STR | ANDE | DNES | S: | Sing | le | | | | | |
| | | | | | (D) | | TOP | OLOG | Y: | Line | ar | | | | | | |
| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | NA | | | | | | - |
| | | | (ii |) | KIN | D (i | f pe | ptid | e or | pro | tein |): | | | | | |
| | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | 0ver | lap | | |
| 10 | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | nt | | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | | |
| | | | (ii | i) | ORI | GINA | | - | : HI | - | | | | | | | |
| | | | | _ | (E) | | | | UAL | ISOL | ATE: | | | | | | |
| | | | (iv |) | | EDIA | | | E : | | | | | | | | |
| 15 | | | , , | | (C) | | CLO | | | | | | | _ | | | |
| | | | (v) | | | | | | OME: | | | | | | | | |
| | | | (vi |) | | | | | EQUE | NCE: | Ex | pres | ses | cons | erved | antigen | ic |
| | | | , . | | | ermi | | | | | | | | | | | |
| 20 | | | (V1 | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | SEQ | ID : | NO: | EE2 | 15–1 | | | | | | | | | | | | |
| 25 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Cys | Ile | Arg | Pro | Asn | Asn | Asn | Thr | Arg | | Ser | I1e | His | Tle | | | |
| | TGT | ATA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 30 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | G1y | Asp | Ile | Ile | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAT | ATA | ATA | GGA | GAT | ATA | | |
| | | | | | | | | | | | | | | | | | |
| 35 | | | | | 25 | | | | | | | | | | | | |
| 55 | A | 01 - | A 1 - | TT 4 - | 35 | | | | | | | | | | | | |
| | | | Ala GCG | | - | | • | | | | | | | | | | |
| | AGA | CAA | GCG | CAI | 161 | | | | | | | | | | | | |
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| 40 | (2) | | | ORMA' | | | | | NO: 1 | | | | | | | | |
| | | | (i) | | | JENCI | E CHA | ARAC' | TER I | STICS | S: | | | | | | |
| | | | | | (A) | | | GTH: | 105 | | | | | | | | |
| | | | | | (B) | | TYPI | | Vucle | | | _ | | | | | |
| 15 | | | | | (C) | | | | DNESS | | Sing. | le | | | | | |
| 45 | | | | | (D) | | | DLOG | | Line | | | | | | | |
| | | | (ii) | , | KINI |): cI |)NA 1 | to ge | enomi | ic RN | AV | | | | | | |

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| 5 | | | (ii (iv | i) | (A) (B) (C) ORI (E) IMM | GINA | SEQ FRA HYP L SO IND TE S | UENC GMEN OTHE URCE IVID OURC | T TY TICA : HI UAL | SEMB PE: L: V | LY M Int | ETHO | | Over | | |
|----|-----------------|------------|---------------------|------------|--|--------------|--|--|------------------------------|------------------------|-------------------|--------------|-------------|------------|------------------|-----------|
| 10 | | | |) ii) | PRO: | PERT ermi | IES nant | GEN OF S | OME: EQUE | NCE: | | | | | erved | antigenic |
| 15 | SEQ | ID : | NO: | EE2 | 15-2 | | | | | | | | | | | |
| 20 | 1 Cys TGT | Ile ATA | Arg AGA | Pro CCC | 5 Asn AAC | Asn AAC | Asn TAA | Thr ACA | Arg AGA | 10 Lys AAA | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA | |
| 25 | Pro CCA | Gly GGG | Arg AGA | Ala GCA | 20 Phe TTT | Tyr TAT | Thr ACA | Thr ACA | Gly GGA | 25 Asp GAT | Ile ATA | Ile ATA | Gly GGA | Asp GAT | 30 Ile ATA | |
| 30 | | | Ala GCA | | | | | | | | | | | | | |
| 35 | (2) | | INFO | ORMA 1 | (A) (B) (C) | ENCE | CHA LENG TYPE STRA | RACT TH: E: N NDEI | ERIS 105 Jucle NESS | TICS | : : | .e | | | | |
| 40 | | | (ii) (ii) | | (D) KIND KIND (A) (B) | : cD | NA t per SEQU | tide ENCE | nomi | prot EMBL | A ein) Y ME | THOE | | verl | | |
| 45 | | | (iii (iv) | | (C) ORIG (E) IMME (C) | INAL DIAT | SOU INDI E SO CLON | RCE: VIDU URCE | AL I | SOLA | | | | | | · |
| 50 | | | (v) (vi) (vii | | POSI PROP dete SEQU | ERTI rmin | ES 0 ant | F SE | QUEN | CE: | in E Exp | nv G ress | ene es c | onse | rved | antigenic |

SEQ ID NO: EE215-3 5 10 15 5 1 Cys Ile Arg Pro Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ATA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Thr Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA ACA ATA ATA GGA GAT ATA 15 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT INFORMATION FOR SEQ ID NO: EEE217-1 20 (2) SEQUENCE CHARACTERISTICS: (i) (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single 25 (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): SEQUENCE ASSEMBLY METHOD: Overlap (A) (B) FRAGMENT TYPE: Internal Fragment 30 (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (E) (iv) IMMEDIATE SOURCE: (C) CLONE: 35 (v) POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EEE217-1 5 10 1 Cys Thr Arg Pro Asn Asn Thr Arg Arg Gly Ile Ser Ile Gly 45

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TGT ACA AGA CCC AAC AAC AAT ACA AGA AGG GGT ATA AGT ATA GGA

| | | | | | 20 |) | | | | 25 | 5 | | | | 30 | |
|----|-----|------|------------|-------|-----------|-------|-------|------|-------|-------|-------|------------|------------|----------------|------|-----------|
| | Pro | G1; | y Ar | g Ala | a Phe | Val | Tyr | Ala | a Thi | Lys | s I1 | e Ile | e G13 | y Asp | Ile | |
| | CCA | A GG | G AG | A GC | A TT | GTI | TAT | GCA | A ACA | AAA A | A ATA | A ATA | GGA | GAT | ATA | |
| 5 | | | | | | | | | | | | | | | | |
| | | | | | 35 | : | | | | | | | | | | |
| | Are | G1r | n A12 | His | Cys | | | | | | | | | | | |
| | | | | | TGI | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | |
| | (2) | | | | TION | FOR | SEQ | ID | NO: | EE21 | 7-2 | | | | | |
| | | | (i) |) | | | E CHA | ARAC | TERI | STIC | s: | | | | | |
| | | | | | (A) | | LEN | | 10 | 5 | | | | | | |
| 15 | | | | | (B) | | TYPI | | Nuc1 | | | | | | | |
| | | | | | (C) | | | | DNES | | Sing | :le | | | | |
| | | | (:: | ` | (D) | | TOP | | | Line | | | | | | |
| | | | (ii (ii | | KIN | D: C. | DNA 1 | to g | enom | ic R | NA | \ . | | | | |
| | | | (11 | , | (A) | U (1) | f per | | | | | | n . | ^ | | |
| 20 | | | | | (B) | | | | | | | | | Over: agmer | | |
| | | | | | (c) | | HYPO | | | | 1111 | erna | I FI | agmer | 1 C | |
| | | | (ii | i) | | | L SOU | | | | | | | _ | | |
| | | | , | -, | (E) | | | | UAL | | ATE: | | | | | |
| | | | (iv |) | | EDIA: | TE SC | | | | | . — | | | | |
| 25 | | | | | (C) | | CLON | | | | | | | | | |
| | | | (v) | | POS | ITION | IN | GEN | OME: | Wit | hin | Env | Gene | _ | | |
| | | | (vi |) | PRO | PERT | ES C | F S | EQUE | NCE: | Ex | pres | ses | conse | rved | antigenic |
| | | | | | det | ermin | ıant | | | | | | | | | J |
| 30 | | | (vi | ii) | SEQ | JENCE | DES | CRI | PTIO | V: | | | | | | |
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| | SEO | ו תז | NTO • | EE0. | י לו | | | | | | | | | | | |
| | SEQ | ועו | NO: | EE2 | 17-2 | | | | | | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | | Asn | Asn | Thr | Arg | | Ser | Ile | Thr | Ile | Cl v | |
| | TGT | ACA | AGA | CCC | AAT | AAC | AAT . | ACA | AGA | AAA | AGT | ATA | ACT | ATA | GGA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | |
| +0 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | Gly | Glu | Ile | Ile | Gly | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA A | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
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| | Arg | C1n | Δ1 c | Hi. | 35 Cwa | | | | | | | | | | | |
| | AGA | | | | • | | | | | | | | | | | |
| | | | JUN | OHI | 191 | | | | | | | | | | | |
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| | (2) | INFORMA | ATION FOR SEQ ID NO: EE228-1 |
|------------|---------|---------|---|
| | | (i) | SEQUENCE CHARACTERISTICS: |
| _ | | | (A) LENGTH: 105 |
| 5 | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 10 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| 15 | | (iv) | IMMEDIATE SOURCE: |
| | | | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | | determinant |
| 20 | | (viii) | SEQUENCE DESCRIPTION: |
| | | | |
| | | | |
| | SEQ ID | NO: EE2 | 28–1 |
| 25 | | | |
| 25 | | | |
| | 1 | | 5 10 15 |
| | Cys Thr | Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA |
| 30 | | | |
| 50 | | | |
| | | | 20 25 30 |
| | Pro Gly | Arg Ala | Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | TTT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA |
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| | | Ala His | |
| | AGA CAA | GCA CAT | TGT |
| 10 | | | |
| | (0) | | |
| | (2) | | TION FOR SEQ ID NO: EE228-2 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| ! 5 | | | (B) TYPE: Nucleic Acid |
| - | | | (C) STRANDEDNESS: Single |
| | | (::) | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |

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| 5 | | (iii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
|----|--------|---------------------|--|
| 10 | | (iv) (v) (vi) | IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | (viii) | determinant SEQUENCE DESCRIPTION: |
| 15 | SEQ ID | NO: EE: | 228–2 |
| | 1 | | 5 10 15 |
| 20 | Cys Th | r Arg Pro | O Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly C AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA |
| | igi Aq | A AGA CCC | , AND AND AND AGA AGA AGA AGI ATA CUT ATA GGA |
| | D 01- | | 20 25 30 |
| 25 | CCA GG | G AGA GCA | Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile TTT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA |
| | | | 35 |
| 30 | | Ala His GCA CAT | Cys |
| | (2) | INFORMA | TION FOR SEQ ID NO: EE228-3 |
| 35 | | (i) | SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 45 | | (iii) | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| 50 | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | (viii) | determinant SEQUENCE DESCRIPTION: |

SEQ ID NO: EE228-3

5 10 15 5 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA 20 25 30 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE229-1 20 SEQUENCE CHARACTERISTICS: (A) LENGTH: 102 (B) TYPE: Nucleic Acid STRANDEDNESS: Single (C) (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: CLONE: (v) POSITION IN GENOME: Within Env Gene 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant SEQUENCE DESCRIPTION: (viii) 40 SEQ ID NO: EE229-1 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Ser Ile His Ile Gly 45 TGT ACA AGA CCC AAT AAC AAT ACA AGA AGA AGT ATA CAT ATA GGA

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| | | | | | | | | | | | | | | | Arg | | | | |
| | CCA | GGG | AGA | GCA | TTI | TAT | GCA | ACA | GAI | ATA | ATA | GGA | raa / | ' ATA | AGA | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | | | |
| | G1n | Ala | His | Cvs | | | | | | | | | | | | | | | |
| | | GCA | | _ | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| | (0) | | | | | | | | | | | | | | | | | | |
| | (2) | | 1NF | | | | | | NO: | | | | | | | | | | |
| | | | (1) | | (A) | | | GTH: | TERI 10 | | 5: | | | | | | | | |
| 15 | | | | | (B) | | | | Nucl | _ | Acid | | | | | | | | |
| 75 | | | | | (c) | | | | DNES | | | | | | | | | | |
| | | | | _ | (D) | | | | Y: | | | | | | | | | | |
| | | | |) | | | | | enom | | | | | | | | | | |
| | | | (ii |) | (A) | | | | e or E AS | | | | D. | ~ | 1 | | | | |
| 20 | | | | | (B) | | | | | | | | l. 1 Fr | Over | | | | | |
| | | | | | (c) | | | | TICA | | | | | ug.mc. | | | | | |
| | | | (ii: | i) | ORI | GINA | L SO | URCE | : HI | V | | | | | | | | | |
| | | | | | (E) | | | | UAL | ISOL | ATE: | | | | | | | | |
| 25 | | | (iv |) | IMMI (C) | EDIA! | | | E: | | | | | | | | | | |
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| | | | (v) | | | וחודו | CLO | | OME . | W4+1 | hin 1 | Farr | Cono | - | | | | | |
| | | | (v) (vi) | | POS | | N IN | GEN | | | | | Gene | | erved | i an | tio | enio | |
| | | | (v) (vi) | | POS: | | N IN | GEN | | | | | | | erved | i an | tig | enio | : |
| 30 | | | (vi) | | POS: PROI dete | PERT: ermin | N IN IES (nant | GEN OF S | | NCE: | | | | | erve | i an | tig | enio | : |
| 30 | | | (vi) |) | POS: PROI dete | PERT: ermin | N IN IES (nant | GEN OF S | EQUE | NCE: | | | | | erved | i an | tig | enio | > |
| 30 | SFO | רו א | (vi) |) ii) | POS: PROI dete SEQU | PERT: ermin | N IN IES (nant | GEN OF S | EQUE | NCE: | | | | | erved | i an | tig | enio | 2 |
| 30 | SEQ | ID N | (vi) |) ii) | POS: PROI dete SEQU | PERT: ermin | N IN IES (nant | GEN OF S | EQUE | NCE: | | | | | erve | i an | tig | enio | 3 |
| | SEQ | ID N | (vi) |) ii) | POS: PROI dete SEQU | PERT: ermin | N IN IES (nant | GEN OF S | EQUE | NCE: | | | | | erved | i an | tig: | enio | • |
| <i>30</i> | 1 | | (vi) (vii |) ii) EE2: | POS: PROI dete SEQI | PERT: ermin JENCI | N IN IES (nant E DE: | GEN OF S | EQUEI | NCE: N: | Ex | pres | ses | cons | 15 | i an | tig | enio | 3 |
| | 1 Cys | Thr | (vi) (vii) (vii) |) ii) EE2: Pro | POS: PROI dete SEQI 29-2 | PERT: PERT: JENCI | N IN IES (nant E DE: | GEN OF S SCRI | EQUE PTIOI Arg | NCE: N: 10 Lys | Ex; | pres. | ses | cons. | 15 Gly | i an | tig | enio | 2 |
| | 1 Cys | Thr | (vi) (vii) (vii) |) ii) EE2: Pro | POS: PROI dete SEQI 29-2 | PERT: PERT: JENCI | N IN IES (nant E DE: | GEN OF S SCRI | EQUE PTIOI Arg | NCE: N: 10 Lys | Ex; | pres. | ses | cons. | 15 Gly | i an | tig | enio | 2 |
| | 1 Cys | Thr | (vi) (vii) (vii) |) ii) EE2: Pro | POS: PROI dete SEQI 29-2 | PERT: PERT: JENCI | N IN IES (nant E DE: | GEN OF S SCRI | EQUE PTIOI Arg | NCE: N: 10 Lys | Ex; | pres. | ses | cons. | 15 Gly | i an | tig | enio | |
| | 1 Cys | Thr | (vi) (vii) (vii) |) ii) EE2: Pro | POS: PROD dete SEQU 29-2 5 Gly GGC | PERT: PERT: JENCI | N IN IES (nant E DE: | GEN OF S SCRI | EQUE PTIOI Arg | NCE: N: 10 Lys AAA | Ex; | pres. | ses | cons. | 15 Gly GGA | i an | tig | enio | > |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii IO: Arg AGA |) ii) EE2: Pro CCC | POS: PROD dete SEQUENTE 29-2 5 Gly GGC | PERT: PERMIN JENCI Asn AAC | N IN IES (nant E DE: Asn AAT | GEN OF S SCRI | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 G1y GGA | i an | tig | enic | |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) (vii) Arg |) ii) EE2: Pro CCC | POS: PROD dete SEQUENT 29-2 5 Gly GGC 20 Ile | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | ses | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enio | |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) (vii) Arg |) ii) EE2: Pro CCC | POS: PROD dete SEQUENT 29-2 5 Gly GGC 20 Ile | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enic | |
| 35 | 1 Cys TGT | Thr ACA | (vi) (vii) (vii) (vii) Arg |) ii) EE2: Pro CCC | POS: PROD dete SEQUE 29-2 5 Gly GGC 20 Ile ATT | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enio | 2 |
| 35 40 | 1 Cys TGT Pro | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGA | Pro CCC | POS: PROD dete SEQUENT 29-2 5 Gly GGC 20 Ile | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig. | enio | 2 |
| 35 40 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi) (vii) (vii) (vii) Arg AGA Arg AGA |) ii) EE2: Pro CCC Ala GCA Cys | POS: PROD dete SEQUE 29-2 5 Gly GGC 20 Ile ATT | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enic | |
| 35 40 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi) (vii) (vii) (vii) Arg AGA Arg AGA |) ii) EE2: Pro CCC Ala GCA Cys | POS: PROD dete SEQUE 29-2 5 Gly GGC 20 Ile ATT | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enio | |
| 35 40 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi) (vii) (vii) (vii) Arg AGA Arg AGA |) ii) EE2: Pro CCC Ala GCA Cys | POS: PROD dete SEQUE 29-2 5 Gly GGC 20 Ile ATT | PERT: PERMIN JENCI Asn AAC | Asn AAT | GEN OF S SCRI Thr ACA | EQUE PTIOI Arg AGA | NCE: N: 10 Lys AAA 25 Ile | Gly GGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA 30 Arg | i an | tig | enio | 2 |

| | (2) | INFORMA | ATION FOR SEQ ID NO: EE229-3 | | | | | | | | | |
|----|---------|-----------|---|--|--|--|--|--|--|--|--|--|
| | | (i) | SEQUENCE CHARACTERISTICS: | | | | | | | | | |
| | | | (A) LENGTH: 102 | | | | | | | | | |
| _ | | | (B) TYPE: Nucleic Acid | | | | | | | | | |
| 5 | | | (C) STRANDEDNESS: Single | | | | | | | | | |
| | | | (D) TOPOLOGY: Linear | | | | | | | | | |
| | | (ii) | KIND: cDNA to genomic RNA | | | | | | | | | |
| | | (ii) | KIND (if peptide or protein): | | | | | | | | | |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap | | | | | | | | | |
| 10 | | | (B) FRAGMENT TYPE: Internal Fragment | | | | | | | | | |
| | | | (C) HYPOTHETICAL: | | | | | | | | | |
| | | (iii) | ORIGINAL SOURCE: HIV | | | | | | | | | |
| | | | (E) INDIVIDUAL ISOLATE: | | | | | | | | | |
| | | (iv) | IMMEDIATE SOURCE: | | | | | | | | | |
| 15 | | | (C) CLONE: | | | | | | | | | |
| | | (v) | POSITION IN GENOME: Within Env Gene | | | | | | | | | |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic | | | | | | | | | |
| | | | determinant | | | | | | | | | |
| | | (viii) | SEQUENCE DESCRIPTION: | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | SEQ ID | NO: EE2 | 29–3 | | | | | | | | | |
| | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| | 1 - | | 5 10 15 | | | | | | | | | |
| | Cys Thi | Arg Pro | Gly Asn Asn Thr Arg Lys Gly Ile His Ile Gly | | | | | | | | | |
| | IGI ACA | A AGA CCC | GGC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA | | | | | | | | | |
| | | | | | | | | | | | | |
| 30 | | | 20 25 30 | | | | | | | | | |
| | Pro Cla | . A=- A1- | | | | | | | | | | |
| | CCV CCC | VIR NIS | Ile Tyr Ala Thr Asp Ile Ile Gly Asp Ile Arg ATT TAT GCA ACA GAT ATA ATA GGA GAT ATA AGA | | | | | | | | | |
| | CCA GGG | AGA GCA | ATT THE GOA NOW GAT ATA AGA | | | | | | | | | |
| | | | | | | | | | | | | |
| 35 | | | 35 | | | | | | | | | |
| | Gln Ala | His Cys | | | | | | | | | | |
| | | CAT TGT | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 40 | (2) | INFORMA | TION FOR SEQ ID NO: EEE244-1 | | | | | | | | | |
| | | (i) | SEQUENCE CHARACTERISTICS: | | | | | | | | | |
| | | | (A) LENGTH: 102 | | | | | | | | | |
| | | | (B) TYPE: Nucleic Acid | | | | | | | | | |
| | | | (C) STRANDEDNESS: Single | | | | | | | | | |
| 45 | | | (D) TOPOLOGY: Linear | | | | | | | | | |
| | | (ii) | KIND: cDNA to genomic RNA | | | | | | | | | |
| | | | | | | | | | | | | |

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| . 5 | | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment | |
|-----|--------|--------------|--|----|
| 5 | | (iii) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: | |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: | |
| 10 | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigeni determinant | .c |
| | | (viii) | | |
| 15 | SEQ II | NO: EE | 244-1 | |
| | 1 | | 5 10 15 | |
| 20 | | r Arg Pro | Asn Asn Asn Ile Lys Ile Arg Ser Ile His Ile | |
| | TGT AC | CA AGG CCC | C AAC AAC AAT ATA AAA ATA AGA AGT ATA CAT ATA | |
| | | | 20 25 30 | |
| 25 | | | Pro Phe Tyr Thr Thr Lys Ile Gly Asp Ile Arg | |
| | GGA CC | A GGG AGA | CCA TTT TAT ACA ACA AAA ATA GGA GAT ATA AGA | |
| | Gln Al | a Tyr Cys | 35 | |
| 30 | | A TAT TGT | | |
| | (2) | INFORMA | TION FOR SEQ ID NO: EE244-2 | |
| 35 | | (i) | SEQUENCE CHARACTERISTICS: (A) LENGTH: 102 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): | |
| | | /··· | (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: | |
| 45 | | (iii) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: | |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: | |
| | | (v) | POSITION IN GENOME: Within Env Gene | |
| 50 | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant | 2 |
| | | (viii) | SEQUENCE DESCRIPTION: | |

SEQ ID NO: EE244-2

1 5 10 15 5 Cys Thr Arg Pro Asn Asn Ile Lys Ile Arg Ser Ile His Ile TGT ACA AGG CCC AAC AAC AAT ATA AAA ATA AGA AGT ATA CAT ATA 20 25 30 10 Gly Pro Gly Arg Pro Phe Tyr Thr Thr Lys Ile Gly Asp Ile Arg GGA CCA GGG AGA CCA TTT TAT ACA ACA AAA ATA GGA GAT ATA AGA 35 15 Gln Ala Tyr Cys CAA GCA TAT TGT (2) INFORMATION FOR SEQ ID NO: EE244-3 20 SEQUENCE CHARACTERISTICS: (A) LENGTH: 102 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE244-3 5 10 Cys Thr Arg Pro Asn Asn Ile Lys Ile Arg Ser Ile His Ile 45 TGT ACA AGG CCC AAC AAC AAT ATA AAA ATA AGA AGT ATA CAT ATA

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| | | | | | 20 |) | | | | 25 | i | | | | 30 | | |
|------------|-----------------|-------|-------|-----|------------|----------------|-------|------------|----------|------|--------------|-------|-------|-------|------|----------|---|
| | | | | | | | | | | | | | | Ile | | | |
| | GGA | A CC | GGC | AGA | CCA | TTI | CAT ' | ACA | A ACA | AAA | ATA | GGA | GAI | ATA | AGA | | |
| 5 | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | G1 _r | . A1s | Тът | Cys | | • | | | | | | | | | | | |
| | | | | TGT | | | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | | |
| | (2) |) | | | | FOR | | | | | | | | | | | |
| | | | (i) | 1 | | UENC | | | | | S: | | | | | | |
| | | | | | (A) (B) | | | GTH: | | - | | | | | | | |
| 15 | | | | | (C) | | TYP | | DNES | eic. | Acia Sing | | | | | | |
| | | | | | (D) | | | OLOG | | Line | _ | 16 | | | | | |
| | | | (ii |) | | D: c | | | | | - | | | | | | |
| | | | (ii |) | KIN | D (i | f pe | ptid | e or | pro | tein | | | | | | |
| 20 | | | | | (A) | | | | | | | | | Over1 | | | |
| | | | | | (B) | | | | | PE: | Int | erna. | l Fr | agmer | ıt | | |
| | | | (ii | 4) | (C) | GINA: | | | TICA | | | | | | | | |
| | | | (11 | _, | (E) | | | | | ISOL | ATE: | | | | | | |
| | | | (iv |) | | EDIA: | | | | | | | | | | | |
| 25 | | | | | (C) | | CLO | NE: | | | | | _ | _ | | | |
| | | | (v) | | | ITIO | | | | | | | | | | | |
| | | | (vi |) | | | | OF S | EQUE | NCE: | Ex | pres | ses (| conse | rved | antigeni | C |
| | | | (sri | ii) | | ermi: UENC! | | cob t | ית דיתים | AT . | | | | | | | |
| 30 | | | (• 1 | 11) | bEQ | OENTO | i De, | SCKI | 1110 | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | SEQ | ID I | NO: | EE2 | 89–1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 35 | 1 | | | | | | | | | 10 | | | | | | | |
| | _ | Thr | Ara | Pro | 5 Asn | Acn | Acn | ም ኤ | A = = | 10 | C1 ** | T10 | n: - | Ile | 15 | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | GCT | ATA | CAT | ATA | CCA | | |
| | | | | | | | | | | | | | 0.11 | ***** | OGI | | |
| 40 | | | | | | | | | | | | | | | | | |
| 70 | _ | | | | 20 | _ | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Glu | Ile | Ile | Gly | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | 111 | IAI | ACI | AUA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| | | | | | | | | | | | | | | | | | |
| 45 | | | | | 35 | | | | | | | | | | | | |
| | Arg | Gln | Ala | His | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 5 0 | | | | | | | | | | | | | | | | | |

| | (2) | INFORM | ATION FOR SEQ ID NO: EE289-2 |
|----|--------------|---------|--|
| | | (i) | SEQUENCE CHARACTERISTICS: |
| _ | | | (A) LENGTH: 105 |
| 5 | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 10 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| 15 | | | (E) INDIVIDUAL ISOLATE: |
| 15 | | (iv) | IMMEDIATE SOURCE: |
| | | | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| 20 | | | determinant |
| 20 | | (viii) | SEQUENCE DESCRIPTION: |
| | | | |
| | | | |
| | SEQ ID | NO: EE2 | 89–2 |
| 25 | | | |
| - | 1 | | P |
| | - | A | 5 10 15 |
| | TOT AGA | Arg Pro | Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly |
| | IGI ACA | AGA CCC | AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA |
| 30 | | | |
| | | | 20 25 30 |
| | Pro Gly | A== A1= | |
| | CCA GGG | VIR VIR | Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile TTT TAT ACT ACA GGA GAA ATA ATA GGA GAT ATA |
| | CCA GGG | AGA GUA | III IAI ACI ACA GGA GAA ATA ATA GGA GAT ATA |
| 35 | | | |
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| | Are Gin | Ala His | |
| | | GCA CAT | |
| | 11021 0121 | oon oni | 161 |
| ю | | | |
| | (2) | INFORMA | TION FOR SEQ ID NO: EE290-1 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | (-) | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 5 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | • | DAMANIEC MANT |

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| 5 | | | (ii (ii (iv | i) | (A) (B) (C) ORI (E) IMM | GINA | SEQ FRA HYP L SO IND TE S | UENC GMEN OTHE URCE IVID OURC | T TY TICA : HI UAL | SEMB PE: L: V | LY M | ETHO erna | | Over | | · |
|----|-----|------|-------------------|------|--|--------------|--|--|-----------------------------|------------------------|------|--------------|------|--------------|-------|-----------|
| 10 | | | (v) (vi | | PRO det | PERT ermi | IES nant | GEN OF S | EQUE | NCE: | | Env pres | | | erved | antigenic |
| | | | (vi | ii) | SEQ | UENC. | E DE | SCRI | PTIO | N: | | | | | | |
| 15 | SEQ | ID : | NO: | EE2 | 90–1 | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | • |
| 20 | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Leu | G1y | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | CTA | GGG | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| 05 | Pro | G1y | Arg | Ala | | Tyr | Thr | Thr | G1y | | Ile | Ile | G1v | Asp | | |
| 25 | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
| | | | | | | | | | | | | | | | | |
| | Ara | Gin | Ala | ni c | 35 Cwo | | | | | | | | | | | |
| 30 | | | GCA | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | (2) | | INFO |)RMA | CION | FOR | SEQ | ID N | io: E ERIS | E293 | 1-1 | | | | | |
| 35 | | | (1) | | (A) | | LENG | | 105 | | • | | | | | |
| | | | | | (B) | | | | lucle | | | | | | | |
| | | | | | (D) | | | | NESS | | | .e | | | | |
| | | | (ii) |) | KIND | | | | | | | | | | | |
| 40 | | | (ii) |) | KIND | (if | pep | tide | or | prot | ein) | : | _ | | | |
| • | | | | | (A) (B) | | | | | | | | | verl gmen | | |
| | | | _ | | (c) | | HYPO | THET | ICAL | : _ | | | | Rmen | | |
| 45 | | | (iii | .) | ORIG | | | | | | me. | | | | | |
| | | | (iv) | | IMME | DIAT | E SO | URCE | : AL I | SULA | TE: | | | | | |
| | | | | | (C) | | CLON | E: | | | | | | - | | |
| | | | (v) (vi) | | POSI | | | | | | | | | | | |
| 50 | | | (V I) | | ete. | rmin | eo U ant | r de | ΛΩΕΙΝ | CE: | Ехр | ress | es c | onse | rved | antigenic |
| | | | (vii | | SEQU | | | CRIP | TION | : | | | | | | |
| | | | | | | | | | | | | | | | | |

SEQ ID NO: EE293-1

5 10 5 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 30 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asn Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA AAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE293-2 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 TYPE: Nucleic Acid (B) (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: CLONE: (v) POSITION IN GENOME: Within Env Gene 35 (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE293-2 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly 45 TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA

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|----|-----|-------|-------|-------|-------|-------|------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| | Pro | o G1 | y Ar | g Ala | a Phe | Ty: | Th | r Th | r G1 | y G11 | 1 I1e | e Ile | e G13 | Asn | Ile | | |
| | CCA | A GG | G AG | A GC | A TT | LAT 7 | ' AC | A ACA | A GG | A GAA | ATA | A ATA | A GGA | TAA | ATA | | |
| - | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | |
| | | | | | 35 | 5 | | | | | | | | | | | |
| | Arg | g Glr | ı Ala | a His | Cys | ; | | | | | | | | | | | |
| | | | | A CAT | | | | | | | | | | | | | |
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| 10 | | | | | | | | | | | | | | | | | |
| | (2) |) | INF | ORMA | TION | FOR | SEC |) ID | NO: | EE29 | 3-3 | | | | | | |
| | | | (i) | | | UENC | | | | | | | | | | | |
| | | | | | (A) | | | IGTH: | | | | | | | | | |
| | | | | | (B) | ı | TYE | E: | Nuc1 | eic | Acid | 1 | | | | | |
| 15 | | | | | (C) | | | | | s: | | | | | | | |
| | | | | | (D) | | | | | Line | | | | | | | |
| | | | (ii | .) | | D: c | | | | | | | | | | | |
| | | | (ii | | | D (i | | | | | |): | | | | | |
| | | | | | (A) | | | | | SEMB | | | D: | Over] | ap | | |
| 20 | | | | | (B) | | | | | PE: | | | | agmer | | • | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | -6 | | | |
| | | | (ii | i) | ORI | GINA: | L SO | URCE | : HI | v | | | | | | | |
| | | | | | (E) | | | | | ISOL | ATE: | | | | | | |
| | | | (iv |) | IMM | EDIA: | | | | | | | | | | | |
| 25 | | | | | (C) | | CLO | NE: | | | | | | | | | |
| | | | (v) | | POS | ITIO | NI V | GEN | OME: | Wit | hin | Env | Gene | _ | | | |
| | | | (vi |) | PRO | PERT: | IES | OF S | EQUE | NCE: | Ex | pres | ses | conse | rved | anti | genic |
| | | | | | det | ermi | nant | | - | | | • | | | | | 5 |
| 30 | | | (vi | ii) | SEQ | UENCI | E DE | SCRI | PTIO | N: | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | SEQ | ID 1 | NO: | EE2 | 93–3 | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | | | |
| 00 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | Gly | | |
| | TGT | AÇA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | |
| 70 | _ | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Glu | Ile | Ile | Gly | Asn | I1e | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | AAT | ATA | | |
| | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | • | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | | | | His | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| | (2) | INFORMA | ATION FOR SEQ ID NO: EE295-1 |
|------------|---------|----------|---|
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 5 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 10 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | (111) | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: |
| 15 | | (= ,) | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| | | ` ' | determinant |
| | | (viii) | SEQUENCE DESCRIPTION: |
| 20 | | | |
| | | | |
| | SEQ ID | NO: EE2 | 95–1 |
| | | | |
| 0.5 | | | |
| 25 | 1 | | 5 10 15 |
| | Cys Thr | Arg Pro | Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA |
| | | ٠ | |
| 30 | | | |
| 50 | | | 20 25 30 |
| | Pro Gly | Arg Ala | Phe Tyr Ala Thr Lys Asp Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | TTT TAT GCA ACA AAA GAC ATA ATA GGA GAT ATA |
| | | | |
| 35 | | | |
| | 4 61 | 44 | 35 |
| | • | Ala His | |
| | AGA CAA | GCA CAT | TGT |
| | | | |
| 40 | (2) | TRIEODMA | TION FOR ORD IN NO. BROOK O |
| | (2) | (i) | TION FOR SEQ ID NO: EE295-2 |
| | | (1) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 4 5 | | | /- > |
| | | (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA |
| | | ヽエエノ | WIND. COMM TO REHOMIC KNW |

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| E | | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
|----|--------|------------------------|--|
| 5 | | (iii) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| 10 | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| | | (viii) | |
| 15 | SEQ ID | NO: EE2 | 95–2 |
| | 1 | | 5 10 15 |
| 20 | Cys Th | r Arg Pro A AGA CCC | Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA |
| | | | 20 25 30 |
| 25 | | | Phe Tyr Ala Thr Lys Asp Ile Ile Gly Asp Ile TTT TAT GCA ACA AAA GAC ATA ATA GGA GAT ATA |
| 30 | | n Ala His A GCA CAT | |
| | (2) | | TION FOR SEQ ID NO: EE297-1 |
| 35 | | (i) | SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear |
| 40 | | (ii) (ii) | KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 45 | | (iii) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| 50 | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| | | (viii) | SEQUENCE DESCRIPTION: |

SEQ ID NO: EE297-1 10 Cys Ile Arg Pro Asn Asn Thr Arg Lys Ser Ile Asn Ile Gly TGT ATA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA AAT ATA GGA 20 25 30 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asn Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA AAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE297-2 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single TOPOLOGY: Linear (D) 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (E) (iv) IMMEDIATE SOURCE: CLONE: (v) POSITION IN GENOME: Within Env Gene 35 (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: (viii) 40 SEQ ID NO: EE297-2

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Cys Ile Arg Pro Asn Asn Thr Arg Lys Ser Ile Asn Ile Gly TGT ATA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA AAT ATA GGA

| | | | | | 2 | 0 | | | | 2. | 5 | | | | 30 | |
|----|------|------|-------|------|--------|-------|------|-------|----------|------|--------|--------|-------|----------------|------|-----------|
| | Pr | o G1 | y Ar | g Al | a Ph | e Ty | r Th | r Th | r G1 | y G1 | u Ile | e Ile | e Gly | Asn | Ile | |
| | CC | A GG | G AG | A GC | A TT | T TA | r AC | A AC | A GG | A GA | A ATA | ATA | GGA | AAT | ATA | |
| 5 | | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | | |
| | | | | | 3. | 5 | | | | | | | | | | |
| | Arg | 3 G1 | n Ala | a Hi | s Cy | 5 | | | | | | | | | | |
| | AGA | A CA | A GC | A CA | T TG | Γ | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| | (2) |) | INI | FORM | MIOITA | I FOR | SEC |) ID | NO: | EE29 | 7-3 | | | | | |
| | | | (i) | | | QUENC | | | | | | | | | | |
| | | | | | (A) | | | IGTH: | | | | | | | | |
| | | | | | (B) | | TYE | | _ | | Acid | | | | | |
| 15 | | | | | (c) | | | | DNES | | Sing | | | | | |
| | | | | | (D) | | | OLOG | | Line | _ | | | | | |
| | | | (ii | i) | | ID: c | | | | _ | | | | | | |
| | | | (ii | | | D (i | | | | | | ١. | | | | |
| | | | , | - / | (A) | | SEC | UENC | F AS | CEMB | TV M | FTUO' | D: (| Decom 1 | | |
| 20 | | | | | (B) | | FRA | CMEN | T TY | DE. | | | l Fra | | | |
| | | | | | (c) | | | | TICA | | THE | erma | T LIS | agmen | C | |
| | | | (ii | i) | | GINA | | | | | | | | | | |
| | | | \ | / | (E) | | | | UAL | | A TE . | | | | | |
| | | | (iv | r) | | EDIA | | | | 1301 | WIE. | | | | | |
| 25 | | | \ | , | (C) | | CLO | | | | | | | | | |
| | | | (v) | 1 | | ITIO | | | OMF . | Wit | hin | Fore (| 2000 | - | | |
| | | | (vi | | PRO | PERT | TES | OF S | FOUR | いつに・ | ulli. | | sene | | | antigenic |
| | | | | | det | ermi | nent | OI D | DQUL | NCE. | 1111 | hree | ses c | onse | rvea | antigenic |
| | | | (vi | ii) | | UENC | | SCRT | PTIO | NJ • | | | | | | |
| 30 | | | • • • | , | 4 | | | JUN 1 | 1 1 1 0. | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | SEO | ID | NO: | EE2 | 97–3 | | | | • | | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cvs | Ile | Arg | Pro | | Asn | Asn | Thr | Ara | | Ser | T16 | Asn | 71. | C1 | |
| | TGT | ATA | AGA | CCC | AAC | AAC | AAT | ACA | AGG | | ACT | ATA | AAT | ATA A | COA | |
| | | | | | | | | ***** | 1100 | tnn. | NGI | VIV | WI | WIW | GGA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | 25 | | | | | 20 | |
| | Pro | G1v | Aro | A1a | | Tyre | Th- | Th- | C1 | | T1 - | T 7 | 01 | | 30 | |
| | CCA | GGG | AGA | GCA | Tile | TAT | YCY | 1111 | GIY | GIU | 116 | 116 | Gly | Asn . | lle | |
| | 0011 | 000 | non | GCA | 111 | TWI | AUA | ACA | GGA | GAA | ATA | ATA | GGA . | AAT A | ATA | |
| | | | | | | | | | | | | | | | | |
| 45 | | | | | 25 | | | | | | | | | | | |
| | A | C1- | A 1 - | u: - | 35 | | | | | | | | | | | |
| | | | Ala | | | | | | | | | | | | | |
| | AUA | CAA | GCA | CAT | IGT | | | | | | | | | | | |
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| 50 | | | | | | | | | | | | | | | | |

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| | (2 |) | IN | FORM | ATIO | N FO | R SE | Q ID | NO: | EE30 | 04-1 | | | | | | |
|----|-----|-----|------|-------|------|-------|-------|-------|-------|------|----------|-------|-------|------|-------|-------|------|
| | | | (i |) | SEC | QUEN | CE CI | HARA | CTER | ISTI | cs: | | | | | | |
| _ | | | | | (A) | | | NGTH | | | | | | | | | |
| 5 | | | | | (B) |) | TY | PE: | Nucl | leic | Aci | 1 | | | | | |
| | | | | | (c) |) | | RAND | | | | | | | | | |
| | | | | | (D) |) | | POLO | | | | , | | | | | |
| | | | (i: | i) | KIN | ID: c | | to g | | | | | | | | | |
| | | | (i: | i) | KIN | ID (i | if pe | eptio | le or | pro | teir | 1): | | | | | |
| 10 | | | | | (A) |) | SEC | QŪENO | CE AS | SEME | BLY N | 1ETHC | D: | Over | ·lan | | |
| | | | | | (B) |) | FRA | AGMEN | TY TY | PE: | Int | erna | ıl Fr | aome | ent | | |
| | | | | | (C) |) | HYE | POTHE | TICA | L: | | | | ~B | | | |
| | | | (ii | ii) | ORI | GINA | L SC | DURCE | E: HI | v | | | | | | | |
| | | | | | (E) | | | IIVIC | | | ATE: | | | | | | |
| 15 | | | (iv | 7) | IMM | EDIA | TE S | SOURC | E: | | | | | | | | |
| | | | | | (C) | | CLO | NE: | | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | _ | | | |
| | | | (vi | 1) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antig | enic |
| | | | | | det | ermi | nant | : | • | | | £ | | | 02100 | ancig | enic |
| 20 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | SEQ | ID | NO: | EE3 | 04-1 | | | | | | | | | | | | |
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| 25 | | | | | | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lvs | Ser | Ile | Asn | He | Glv | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGG | AAA | AGT | ATA | AAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | 0011 | | |
| 30 | | | | | | | | | | | | | | | | | |
| | _ | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | A1a | Phe | Tyr | Thr | Thr | G1y | Glu | Ile | Ile | G1y | Asp | T1 - | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| 15 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | Arg | Gln | Ala | His | Cys | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | | | |
| U | (0) | | T11- | | | | | | | | | | | | | | |
| | (2) | | INF | JRMA' | CION | FOR | SEQ | ID N | 10: E | E304 | -2 | | | | | | |
| | | | (i) | | SEQU | | | ARACI | | | : | | | • | | | |
| | | | | | (A) | | | STH: | 105 | | | | | | | | |
| 5 | | | | | (B) | | TYPE | | lucle | ic A | cid | | | | | | |
| • | | | | | (C) | | STRA | NDEI | NESS | | ingl | e | | | | | |
| | | | | | (D) | | TOPO | LOGY | : L | inea | r | | | | | | |
| | | | (ii) |) | KIND | : cD | NA t | o ge | nomi | c RN | Α | | | | | | |
| | | | | | | | | | | | | | | | | | |

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| 5 | | (ii) (iii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV | |
|------------|--------------------|------------------------|---|---|
| | | (iv) | (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | |
| 10 | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant | 2 |
| | | (viii) | SEQUENCE DESCRIPTION: | |
| 15 | SEQ ID | NO: EE3 | 304-2 | |
| | 1 | | 5 10 15 | |
| 20 | Cys Thi | r Arg Pro A AGA CCC | Asn Asn Asn Thr Arg Arg Ser Ile Asn Ile Gly C AAC AAC AAT ACA AGG AGA AGT ATA AAT ATA GGA | |
| | | | 20 25 30 | |
| 25 | Pro G13 CCA GG0 | 7 Arg Ala G AGA GCA | Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA | |
| | | | 35 | |
| 30 | | Ala His GCA CAT | | |
| | (2) | INFORMA: | TION FOR SEQ ID NO: EE304-3 | |
| 35 | | (i) | SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (R) FRACMENT TYPE: Lettered FracMent Type: | |
| 45 | | (iii) | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV | |
| | | (iv) | (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | |
| 5 <i>0</i> | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic | |
| | | (viii) | determinant SEQUENCE DESCRIPTION: | |
| | | | | |

SEQ ID NO: EE304-3

| 5 | 1 | | | | 5 | | | | | 10 | | | | | 15 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5 | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Ser | Ile | Asn | Ile | G13 |
| | | | | | | | | | | | | | AAT | | |
| 10 | | | | | 20 | | | | | 25 | | | | | 30 |
| 10 | Pro | G1y | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | G1u | Ile | Ile | G1y | Asp | Ι1€ |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA |
| 15 | | | | | 35 | | | | | | | | | | |
| 75 | Arg | Gln | Ala | His | Cys | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | - | | | | | | |
| | | | | | | | | | | | | | | | |

| | (2) INFORMATION FOR SEQ ID NO: EE308-1 |
|----|---|
| | (i) SEQUENCE CHARACTERISTICS: |
| | (A) LENGTH: 105 |
| | (B) TYPE: Nucleic Acid |
| 5 | (C) STRANDEDNESS: Single |
| | (D) TOPOLOGY: Linear |
| | (ii) KIND: cDNA to genomic RNA |
| | (ii) KIND (if peptide or protein): |
| | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 10 | (B) FRAGMENT TYPE: Internal Fragment |
| | (C) HYPOTHETICAL: |
| | (iii) ORIGINAL SOURCE: HIV |
| | (E) INDIVIDUAL |
| | ISOLATE: |
| 15 | (iv) IMMEDIATE SOURCE: |
| | (C) CLONE: |
| | (v) POSITION IN GENOME: Within Env Gene |
| | (vi) PROPERTIES OF SEQUENCE: Expresses conserved |
| 00 | antigenic determinant |
| 20 | (viii) SEQUENCE DESCRIPTION: |
| | |
| | |
| | SEQ ID NO: EE308-1 |
| 25 | |
| | 1 |
| | 1 5 10 15 |
| | Cys Thr Arg Pro Asn Asn Thr Arg Lys Ser Ile His Ile Gly |
| | TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 30 | |
| | 20 25 30 |
| | |
| | Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| | CON GOC NOW GOW III INI NOW NOW GOW GWW WIM WIM GOW GWI WIM |
| 35 | |
| | 35 |
| | Arg Gln Ala His Cys |
| | AGA CAA GCA CAT TGT |
| | |
| 40 | |
| | (2) INFORMATION FOR SEQ ID NO: EE308-2 |
| | (i) SEQUENCE CHARACTERISTICS: |
| | (A) LENGTH: 105 |
| | (B) TYPE: Nucleic Acid |
| 45 | (C) STRANDEDNESS: Single |
| | (D) TOPOLOGY: Linear |
| | (ii) KIND: cDNA to genomic RNA |
| | . , |
| | |
| E0 | |

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| 5 | (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: |
|-----------------|---|
| 10 | (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant (viii) SEQUENCE DESCRIPTION: |
| ¹⁵ S | EQ ID NO: EE308-2 |
| 20 C | 1 5 10 15 ys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly GT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 25 P. | 20 25 30 ro Gly Arg Pro Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CA GGC AGA CCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| | 35 rg Gln Ala His Cys GA CAA GCA CAT TGT |
| 95 | 2) INFORMATION FOR SEQ ID NO: EE310-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 90 | (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 5 | (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: |
| o | (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant (viii) SEQUENCE DESCRIPTION: |

SEQ ID NO: EE310-1

| 5 | 1 Cys Thi TGT ACA | r Arg Pro | 5 10 15 o Ser Asn Asn Thr Arg Arg Gly Ile His Ile Gly C AGC AAC AAT ACC AGA AGA GGT ATA CAT ATA GGA | |
|----|-------------------------|------------------------|--|---|
| 10 | Pro Gly CCA GG | o Arg Ala G AGA GCA | 20 25 30 a Phe Tyr Thr Thr Gly Glu Ile Thr Gly Asp Ile A TTT TAT ACA ACA GGA GAA ATA ACA GGA GAT ATA | |
| 15 | - | Ala His GCA CAI | · | |
| 20 | (2) | INFORMA | ATION FOR SEQ ID NO: EE310-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
| 25 | | (ii) (ii) | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment | |
| 30 | | (iii) (iv) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | |
| 35 | | (v) (vi) (viii) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigeni determinant SEQUENCE DESCRIPTION: | c |
| 40 | SEQ ID 1 | NO: EE3 | 10-2 | |
| 45 | 1 Cys Thr TGT ACA | Arg Pro AGA CCC | 5 10 15 Ser Asn Asn Thr Arg Arg Gly Ile His Ile Gly AGC AAC AAT ACA AGA AGA GGT ATA CAT ATA GGA | |

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| | Pro | Gly | Arg | 3 A1 | a Phe | Tyr | Thi | Th | r G1 | y G1 | u II | e Th | r G1 | y Ası | Tle | |
| | CCA | GGG | AGA | GC/ | A TT | rat 7 | ACA | A AC | A GG | A GA | A AT | A AC | A GG | A GA | ATA 1 | ٠ |
| 5 | | | | | | | | | | | | | | | | |
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| | Arg | G1n | A12 | Hic | S Cya | | | | | | | | | | | |
| | | | | | TG1 | | | | | | | | | | | |
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| | (2) | | INF | ORMA | TION | FOR | SEQ | ID | NO: | EE31 | .0-3 | | | | | |
| | | | (i) | | SEQ | UENC | E CH | ARA(| TER | STIC | es: | | | | | |
| | | | | | (A) | | | GTH: | | _ | | | | | | |
| 15 | | | | | (B) | | | | Nuc1 | | | | | | | |
| | | | | | (C) | | | | DNES | | Sing | ;le | | | | |
| | | | (ii | ` | (D) | | | | Υ: | | | | | | | |
| | | | (ii | - | KIN | D: cl D (i: | F ne | ro g | enon | ic K | NA Toda | | | | | • |
| | | | ` | • | (A) | <i>D</i> (1) | SEO | UENC | E AS | Pro Semb | T.V N | iji Irtuo | m• | Over | 1 | |
| 20 | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | nt nt | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | - Pinc | | |
| | | | (ii | i) | | GINA | | | | | | | | | | |
| | | | | | (E) | | | | UAL | ISOL | ATE: | | | | | |
| 25 | | | (iv |) | | EDIA | | | E: | | | | | | | |
| | | | () | | (C) | T | CLO | | | | | | | _ | | |
| | | | (v) (vi) | | PPO | KOITI | EC (| GEN | OME: | Wit | hin | Env | Gene | | | |
| | | | (• 1 | , | det | ermin | LED (| Jr 5 | EQUE | NCE: | Ex | pres | ses | cons | erved | antigenic |
| | | | (vi | ii) | | JENCE | | SCRI | PTIO | N • | | | | | | |
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| | SEQ | ID N | 0: | EE3 | 10–3 | | | | | | | | | | | |
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| | _ | Thr | Aro | Pro | | Acn | A c.o. | Th- | ۸ | 10 | 01 | | ••• | | 15 | |
| | Cys TGT | ACA | AGA | CCC | AGC | AAC | AAT | ACA | ACA | Lys | GLY | 116 | His | lle | Gly | |
| | | | | | | | | non | NGA | nnn | GGI | WIW | CAT | AIA | GGA | |
| 40 | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Glu | Ile | Thr | G1y | Asp | T16 | |
| | CCA | GGG . | AGA | GCA | TTT | TAT . | ACA | ACA | GGA | GAA | ATA | ACA | GGA | GAT | ATA | |
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| | Arg (| Gln 4 | Ala | His | | | | | | | | | | | | |
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| | (2) |) | INE | ORMA | TION | FOR | SEC | OI (| NO: | EE31 | 1-1 | | | | | | |
|----|---------------------|-----|------|-------|------|--------|-------|-------|------------|-------------|-----------|------|------|------|-------|---------|----|
| | | | (i) |) | SEQ | UENC | E CE | IARAC | TERI | STIC | es: | | | | | | |
| | | | | | (A) | | LEN | IGTH: | 10 | 5 | | | | | | | |
| _ | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | l | | | | | |
| 5 | | | | | (C) | | STR | ANDE | DNES | S: | Sing | le. | | | | | |
| | | | | | (D) | | TOP | OLOG | Y: | Line | ar | | | | | | |
| | | | (ii | .) | KIN | D; c | DNA | to g | enom | ic R | NA | | | | | | |
| | | | (ii | .) | KIN | D (i | f pe | ptid | e or | pro | tein |): | | | | | |
| | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | 0ver | lap | | |
| 10 | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | nt | | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | | |
| | | | (ii | i) | ORI | GINA | L SO | URCE | : HI | V | | | | | | | |
| | | | | | (E) | | IND | IVID | UAL | ISOL | ATE: | | | | | | |
| | | | (iv |) | IMM | EDIA | TE S | OURC | E : | | | | | | | | |
| 15 | | | | | (C) | | CLO | NE: | | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | | | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigen | ic |
| | | | | | | | nant | | | | | _ | | | | • | |
| | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
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| | SEQ | ID | NO: | EE3 | 11-1 | | | | | | | | | | | | |
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| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Ser | Ile | His | Ile | G1y | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACC | AGA | AGA | AGT | ATA | CAT | ATA | GGA | | |
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| 30 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Ala | Ile | Ile | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GCT | ATA | ATA | GGA | GAT | ATA | | |
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| | AGA | CGA | GCA | TAT | TGT | | | | | | | | | | | | |
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| 40 | <i>(</i> - <i>)</i> | | | | | | | | | | | | | | | | |
| 70 | (2) | | | ORMA' | LION | | | | | | | | | | | | |
| | | | (i) | | | ENC | | ARAC | | | S: | | | | | | |
| | | | | | (A) | | LEN | | 102 | | | | | | | | |
| | | | | | (B) | | TYPE | | Nucle | | Acid | | | | | | |
| 45 | | | | | (C) | | | ANDEI | | S: S | Singl | le | | | | | |
| 70 | | | | | (D) | | | DLOG | | Lines | | | | | | | |
| | | | (ii) |) | KINI | cI: cI | ONA t | o ge | nomi | ic RN | JA | | | | | | |

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| _ | | (i | i) | (A) (B) | : | pepti SEQUEN FRAGME | CE AS | SEMB | LY M | ETHO | D: 1 Fr | Over agme | lap nt | | |
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| 5 | | (i | ii) | (C) ORIC (E) | GINAL | HYPOTH SOURC INDIVI | E: HI | V | ΔΤΕ• | | | | | | |
| | | (i· | v) | | EDIAT | E SOUR | | 1001 | nie. | | | | | · | |
| 10 | | (v |) | POSI | TION | IN GE | NOME: | Wit | hin | Env | Gene | _ | | | |
| | | (v: | i) | PROF | | ES OF | | | | | | | erved | antigeni | 2 |
| | | (v: | iii) | | | DESCR | IPTIO | N: | | | | | | | |
| 15 | SEQ 1 | D NO: | EE3 | 12-1 | | | | | | | | | | | |
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| | | ~h | . D | 5 | A A | | | _10 | | | _ | | 15 | | |
| 20 | TGT A | Thr Arg | CCC | AAC | ASTI A | AT AC | Arg A AGA | Lys AAA | Ser | ATA | ACT | Ile ATA | Gly GGA | | |
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| | Pro G | lu Arg | . 41. | 20 | T A | 1 - 111- | | 25 | T1. | 01 | | | 30 | | |
| 25 | CCA G | AG AGA | GCA | TTT | TAT G | CA ACA | GAT | ATA | ATA | GGA | AAT | ATA | Arg AGA | | |
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| 30 | Gln A | la His | Cvs | 33 | | | | | | | | | | | |
| 30 | | CA CAI | • | | | | | | | | | | | | |
| | (2) | INF | 'ORMA' | TION : | FOR S | EQ ID | NO: I | TE312 | 2-2 | | | | | | |
| 35 | | (i) | | | | CHARAC | | | | | | | | | |
| | | | | (A) | L | ENGTH: | 99 | • | | | | | | | |
| | | | | (B) | | | Nucle | | | | | | | | |
| | | | | (D) | | TRANDE OPOLOG | | _ | Singl | .e | | | | | |
| 40 | | (ii |) | | | A to g | | inea c RN | | | | | | | |
| 40 | | (ii |) | KIND | (if | peptid | e or | prot | ein) |): | | | | | |
| | | | | (A) | S | EQUENC | E ASS | EMBL | Y ME | THOD | | | | | |
| | | | | (B) (C) | | RAGMEN | | | Inte | rnal | Fra | gmen | t | | |
| | | (ii | i) | - | | YPOTHE SOURCE | | | | | | | | | |
| 1 5 | | , | -, | (E) | | NDIVID | | | TE: | | | | | | |
| | | (iv |) | IMMEI | | SOURC | | | | | | | | | |
| | | | | (C) | _ | LONE: | | | | | | | | | |
| | | (v) (vi | | PROBI | CION : | IN GEN | OME: | With | in E | nv G | ene | | | | |
| io | | (V1 | , | deter | mina | our S at | EQUEN | CE: | Ехр | ress | es c | onse | rved | antigenic | |
| | | (vi | ii) | | | DESCRI | PTION | : | | | | | | | |

SEQ ID NO: EEE312-2

| 5 | 1 Cys Thr TGT ACA | Arg Pro | 5 10 15 Asn Asn Asn Thr Arg Lys Ser Ile Thr Ile Gly AAC AAC AAT ACA AGA AAA AGT ATA ACT ATA GGA | |
|----|-------------------------|-----------------------|---|---|
| 10 | Pro Gly CCA GGG | Arg Ala AGA GCA | 20 25 30 Phe Tyr Ala Thr Asp Ile Ile Gly Asn Ile Arg TTT TAT GCA ACA GAT ATA ATA GGA AAT ATA AGA | |
| 15 | Gln Ala | | 35 | |
| 20 | (2) | INFORMAT | TION FOR SEQ ID NO: EE313-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
| 25 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment | |
| 30 | | (iii) (iv) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | |
| 35 | | (v) (vi) (viii) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigeni- determinant SEQUENCE DESCRIPTION: | c |
| 40 | SEQ ID | NO: EE3 | 13-1 | |
| | 1 | . Ama D== | 5 10 15 Asn Asn His Thr Glu Lys Arg Ile Thr Leu Gly | |
| 45 | TGT ACA | A AGA CCC | AAC AAC CAT ACA GAA AAA CGT ATA ACT CTA GGA | |

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| | Pro | G1y | Arg | Val | Leu | Tyr | Thr | Thr | G1y | Arg | Ile | I1e | G1y | Asp | Ile | |
| | CCG | GGG | AGA | GTA | CTT | TAT | ACA | ACA | GGA | AGA | ATA | ATA | GGA | GAT | ATA | |
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| | _ | Arg | | | - | | | | | | | | | | | |
| | AGA | CGA | GCA | CAT | TGT | | | | | | | | | | | |
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| | (2) | | INF | ORMA' | TION | FOR | SEO | TD I | NO: 1 | EE31 | 7_1 | | | | | |
| | (-) | | (i) | | | | | | | STIC | | | | | | |
| | | | (-) | | (A) | | | GTH: | 10 | | - | | | | | |
| | | | | | (B) | | TYP | E: 1 | Nucl | eic A | Acid | | | | | |
| 15 | | | | | (c) | | | ANDE | DNES | S: 1 | Sing | le | | | | |
| | | | | | (D) | | TOP | OLOG | Y: : | Line | ar | | | | | |
| | | | (ii |) | KIN |): cl | DNA | to g | enom | ic R | AN | | | | | |
| | | | (ii |) | KIN |) (i | | | | pro | | | | | | |
| 20 | | | | | (A) | | | | | SEMB: | | | | | _ | |
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| | | | (ii: | i <i>)</i> | | GINA. | | URCE | | | | | | | | |
| | | | / 1 | | (E) | | | | | ISOL | ATE: | | | | | |
| 25 | | | (iv | , | (C) | LDIA. | CLO | DURC | E: | | | | | | | |
| | | | (v) | | | וחזחז | | | OME . | With | hin l | Fnz (| Cone | _ | | |
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| | | Thr ACA | | | | | | | | | | | | | | |
| | 161 | ACA | AGA | CCC | WWI | AAC | WWI | ACA | AGA | AAA | MGI | WIW | ACI | WIW | GGA | |
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| 40 | Pro | G1v | Arg | Ala | | Tyr | Ala | Thr | G1v | G1u | Ile | Ile | G1v | Asp | | |
| 40 | | Gly GGG | | | Phe | | | | | | | | | | Ile | |
| 40 | | | | | Phe | | | | | | | | | | Ile | |
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| 4 0 4 5 | CCA | GGG | AGA | GCA | Phe TTT | | | | | | | | | | Ile | |
| | CCA | GGG G1n | AGA Ala | GCA His | Phe TTT 35 Cys | | | | | | | | | | Ile | |
| | CCA | GGG | AGA Ala | GCA His | Phe TTT 35 Cys | | | | | | | | | | Ile | |
| | CCA | GGG G1n | AGA Ala | GCA His | Phe TTT 35 Cys | | | | | | | | | | Ile | |

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| | (2) |) | IN | FORM | ATION | FOI | R SE | QID | NO: | EE3 | 20-1 | | | | | | |
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| | | | (i |) | SEC | QUEN(| CE CI | IARA(| CTER | ISTI | cs: | | | | | | |
| | | | | | (A) |) | LE | VGTH: | : 10 |)5 | | | | | | | |
| 5 | | | | | (B) |) | TY | PE: | Nucl | leic | Acid | i | | | | | |
| | | | | | (C) |) | STI | RANDI | EDNES | SS: | Sing | (le | | | | | |
| | | | | | (D) |) | | OLO | | Line | - | | | | | | |
| | | | (i: | i) | KIN | D: c | DNA | to s | genon | nic F | RNA | | | | | | |
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| 10 | | | | | (A) | | | | | | | | D: | 0ver | ·lan | | |
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| | | | (ii | i) | | | | | : HJ | | | - | | | | | |
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| | Сув | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | Gly | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | | |
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| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Glu | Ile | Ile | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
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| | | | (i) | | | ENCE | | | CERIS | | 5: | | | , | | | |
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| | | | | | (B) | | | | lucle | | | | | | | | |
| 45 | | | | | (C) | | | | DNESS | | | .e | | | | | |
| | | | | | (D) | | | | : I | | | | | | | | |
| | | | (ii) |) | KIND | : cI | NA t | o ge | nomi | c RN | IA | | | | | | |
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| (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (Iv) IMMEDIATE SOURCE: (C) CLONE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant (viii) SEQUENCE DESCRIPTION: SEQ ID NO: EE320-2 1 5 10 15 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GCA 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA GAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYFE: Nucleic Acid (C) STRANDENNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (iii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRACMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (IV) IMMEDIATE SOURCE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
|---|----|----------|---------|--|
| (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROFERTIES OF SEQUENCE: Expresses conserved antigen determinant (viii) SEQUENCE DESCRIPTION: SEQ ID NO: EE320-2 1 5 10 15 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (iii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRACMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (II) ORIGINAL SOURCE: (III) ORIGINAL SOURCE: (IV) POSITION IN GENOME: Within Env Gene (vi) PROFERTIES OF SEQUENCE: Expresses conserved antigen determinant | 5 | | (iii) | ORIGINAL SOURCE: HIV |
| (vi) PROFERTIES OF SEQUENCE: Expresses conserved antiger determinant (viii) SEQUENCE DESCRIPTION: SEQ ID NO: EE320-2 1 5 10 15 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRACMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iv) IMMEDIATE SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene determinant | | | | (C) CLONE: |
| (viii) SEQUENCE DESCRIPTION: SEQ ID NO: EE320-2 1 | 10 | | | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| SEQ ID NO: EE320-2 1 | | | (viii) | |
| Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 15 | SEQ ID | NO: EE | 320–2 |
| 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (v) POSITION IN GENOME: Within Env Gene (vi) PROFPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | 1 | | 5 10 15 |
| 20 25 30 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 20 | | | |
| Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | • | 101 1101 | | THE THE REAL PROPERTY AND THE COLUMN THE COL |
| CCA GGC AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | 20 25 30 |
| Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 25 | | | |
| Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (D) TOPOLOGY: Linear (II) KIND: cDNA to genomic RNA (II) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (III) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (IV) IMMEDIATE SOURCE: (V) POSITION IN GENOME: Within Env Gene (VI) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | CCA GGC | AGA GUA | TIT INT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | 35 |
| (2) INFORMATION FOR SEQ ID NO: EE322-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (C) HYPOTHETICAL: (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: HIV (E) INDIVIDUAL ISOLATE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 30 | _ | | |
| (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | AGA CAA | GCA CAI | . 161 |
| (A) LENGTH: 99 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | (2) | | |
| (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 35 | | (1) | |
| (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | (B) TYPE: Nucleic Acid |
| (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (V) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | |
| (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | - | (ii) | |
| (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 10 | | | |
| (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | | · · · · · · · · · · · · · · · · · · · |
| (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | (iii) | |
| (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | 15 | | (/ | |
| (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | (iv) | IMMEDIATE SOURCE: |
| (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigen determinant | | | () | |
| determinant | | | | |
| | 50 | | (**) | determinant |
| / + + + + > ODGOTTAOD DEGOL/TETTOM # | | | (viii) | |

SEQ ID NO: EE322-1 5 1 5 10 Thr Arg Pro Gly Asn Asn Thr Arg Lys Gly Ile His Ile Gly Pro ACA AGA CCC GGC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA CCA 10 20 25 30 Gly Arg Ala Ile Tyr Ala Thr Asp Ile Ile Gly Asp Ile Arg Gln GGG AGA GCA ATT TAT GCA ACA GAT ATA ATA GGA GAT ATA AGA CAA 15 35 Ala His Cys GCA CAT TGT 20 (2) INFORMATION FOR SEQ ID NO: EE322-2 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 TYPE: Nucleic Acid (B) (C) STRANDEDNESS: Single 25 (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (ii) (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment 30 (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: 35 (v) POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant SEQUENCE DESCRIPTION: (viii) 40 SEQ ID NO: EE322-2 1 5 10

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Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA.

| | | | | | 20 | | | | | 25 | | | | | 30 | | |
|-----------|-------------------------------|--------------------------|--|-------------------------|--|--|---------------------------------|-------------|----------------------------|---|-------------------|------------|------------|------------|-------------------------------|------|-------|
| | Pro | G1y | Arg | A1a | Phe | Tyr | Thr | Thr | G1y | G1u | Ile | Ile | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| 5 | | | | | | | | | | | | | | | | | |
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| | | | | | 35 | | | | | | | | | | | | |
| | | | Ala | | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA' | TION | FOR | SEO | TD ' | NO: | EE32 | 2-3 | | | | | | |
| | (-/ | | (i) | | | | | | | STIC | | | | | | | |
| | | | | | (A) | | | GTH: | 10 | | _ | | | | | | |
| 15 | | | | | (B) | | TYP | E: 1 | Nuc1 | eic A | Acid | | | | | | |
| | | | | | (C) | | STR | ANDE | DNES | S: | Sing | le | | | | | |
| | | | | | (D) | | | OLOG | | Line | | | | | | | |
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| | | | (ii |) | |) (i: | | | | pro | | | | | | | |
| 20 | | | | | (A) (B) | | - | | | | | | | Over1 | _ | | |
| | | | | | (C) | | | OTHE' | | PE: | Inc | erna. | L Fra | agmer | 1 L | | |
| | | | (ii: | i) | | TNA | | URCE | | - | | | | | | | |
| | | | \ | -, | (E) | | | | | ISOL | ATE: | | | | | | |
| 25 | | | (iv |) | IMMI | DIA: | | OURC | | | | | | | | | |
| 25 | | | | | (C) | | CLO | NE: | | | | | | _ | | | |
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| | | | (v) | | | | | | | With | | | | | | | |
| | | | (v) (vi | | PROI | ERT | ES (| | | | | | | conse | rved | anti | genic |
| | | | (vi |) | PROI dete | ERT: | IES (nant | OF S | EQUE | NCE: | | | | conse | rved | anti | genic |
| 30 | | | |) | PROI dete | ERT: | IES (nant | | EQUE | NCE: | | | | conse | erved | anti | genic |
| 30 | | | (vi |) | PROI dete | ERT: | IES (nant | OF S | EQUE | NCE: | | | | conse | erved | anti | genic |
| 30 | SEQ | ID 1 | (vi (vi |) ii) | PROI dete SEQU | ERT: | IES (nant | OF S | EQUE | NCE: | | | | conse | erved | anti | genic |
| 30 | SEQ | ID 1 | (vi |) ii) | PROI dete SEQU | ERT: | IES (nant | OF S | EQUE | NCE: | | | | conse | erved | anti | genic |
| | SEQ | ID 1 | (vi (vi |) ii) | PROI dete SEQU | ERT: | IES (nant | OF S | EQUE | NCE: | | | | conse | erved | anti | genic |
| 30 35 | 1 | ÷ | (vi (vi: |) ii) EE32 | PROP dete SEQU | PERTI Ermin JENCI | IES (nant E DE: | OF S | EQUEI PT101 | NCE: N: 10 | Ex | presi | es (| | 15 | anti | genic |
| | 1 Cys | Thr | (vi (vi: NO: |) ii) EE32 Pro | PROD dete SEQU 22-3 | PERT: | IES (nant E DE: | OF SI | EQUE PTIO | NCE: N: 10 Lys | Ex | pres: | es (| Ile | 15 G1v | anti | genic |
| | 1 Cys | Thr | (vi (vi: NO: |) ii) EE32 Pro | PROD dete SEQU 22-3 | PERT: | IES (nant E DE: | OF SI | EQUE PTIO | NCE: N: 10 Lys | Ex | pres: | es (| | 15 G1v | anti | genic |
| | 1 Cys | Thr | (vi (vi: NO: |) ii) EE32 Pro | PROD dete SEQU 22-3 | PERT: | IES (nant E DE: | OF SI | EQUE PTIO | NCE: N: 10 Lys | Ex | pres: | es (| Ile | 15 G1v | anti | genic |
| | 1 Cys | Thr | (vi (vi: NO: |) ii) EE32 Pro | PROI dete SEQU 22-3 5 Asn AAT | PERT: | IES (nant E DE: | OF SI | EQUE PTIO | NCE: N: 10 Lys AAA | Ex | pres: | es (| Ile | 15 Gly GGA | anti | genic |
| 35 | 1 Cys TGT | Thr ACA | (vi (vi: NO: Arg AGA |) EE32 Pro CCC | PROI dete SEQU 22-3 5 Asn AAT | PERTI PERTI PENCI ASD ASD | ES (nant E DE: Asn AAT | Thr ACA | EQUE PTIO Arg AGA | NCE: N: 10 Lys AAA | Ex; Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 G1y GGA | anti | genic |
| 35 | 1 Cys TGT | Thr ACA | (vi (vi: NO: Arg AGA |) ii) EE32 Pro CCC | PROI dete SEQU 22-3 5 Asn AAT 20 Phe | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT | Thr ACA | (vi (vi: NO: Arg AGA |) ii) EE32 Pro CCC | PROI dete SEQU 22-3 5 Asn AAT 20 Phe | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT | Thr ACA | (vi (vi: NO: Arg AGA |) ii) EE32 Pro CCC | PROI dete SEQU 22-3 5 Asn AAT 20 Phe | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT Pro | Thr ACA Gly GGG | (vi (vi: NO: Arg AGA | Pro CCC | PRODUCT SEQUENTS SEQU | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi (vi: NO: Arg AGA Arg AGA | Pro CCC | PRODUCT SEQUENTS SEQU | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi (vi: NO: Arg AGA | Pro CCC | PRODUCT SEQUENTS SEQU | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |
| 35 | 1 Cys TGT Pro CCA | Thr ACA Gly GGG | (vi (vi: NO: Arg AGA Arg AGA | Pro CCC | PRODUCT SEQUENTS SEQU | PERTIPERMINATE OF THE PERTIPERMENT OF THE PERT | Asn AAT | Thr ACA | Arg AGA | NCE: N: 10 Lys AAA 25 Glu | Ser AGT | Ile ATA | Thr ACT | Ile ATA | 15 Gly GGA 30 Ile | anti | genic |

| | (2) |) | INI | FORM | MOITA | I FOI | R SEC | QID | NO: | EE3 | 24-1 | | | | | | |
|----|-----|------|------|-------|------------|-------|-------|-------|--------|---------|-------|------------|------|------|-------|---------|----|
| | | | (i) |) | SEC | UEN(| CE CE | IARA(| CTERI | STI | cs: | | | | | | |
| | | | | | (A) |) | LEN | NGTH: | : 10 | 5 | | | | | | | |
| 5 | | | | | (B) |) | TY | E: | Nuc1 | eic | Acid | i | | | | | |
| Ÿ | | | | | (C) |) | STE | RANDE | EDNES | s: | Sing | ;le | | | | | |
| | | | | | (D) |) | TOF | OLOG | SY: | Line | ear | | | | | | |
| | | | (ii | i) | KIN | D: c | DNA | to g | genom | ic F | AMS | | | | | | |
| | | | (ii | 1) | KIN | D (i | f pe | ptid | le or | pro | tein | ·): | | | | | |
| 10 | • | | | | (A) | | SEC | UENC | E AS | SEMI | BLY M | ETHO | D: | 0ver | lap | | |
| 10 | | | | | (B) | | FRA | GMEN | IT TY | PE: | Int | erna | 1 Fr | agme | nt | | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | | |
| | | | (ii | .i) | ORI | GINA | L SO | URCE | : HI | V | | | | | | | |
| | | | | | (E) | | IND | IVID | UAL | ISOL | ATE: | | | | | | |
| 15 | | | (iv | ·) | IMM | EDIA | TE S | OURC | E: | | | | | | | | |
| | | | | | (C) | | CLO | | | | | | | _ | | | |
| | | | (v) | | | | | | OME: | | | | | | | | |
| | | | (vi | .) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigen | ic |
| | | | | | det | ermi | nant | | | | | | | | | | |
| 20 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | GE0 | T.D. | 110 | | | | | | | | | | | | | | |
| | SEQ | מנ | NO: | EE3 | 24-1 | | | | | | | | | | | | |
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| 25 | 1 | | | | 5 | | | | | 10 | | | | | • • | | |
| | | The | ۸ | D | - | ۸ | ۸ | 17°L | *1. | 10 | | T1 | ** * | | 15 | | |
| | тст | YCV | VCV | CCC | Asn AAC | VAC | ASII | THE | 116 | Lys | Ser | 116 | HIS | MET | GIY | | |
| | 101 | non | NOA | CCC | AAC | AAC | WYI | ACA | AIA | MMM | MGI | AIA | CAI | AIG | GGA | | |
| | | | | | | | | | | | | | | | | | |
| 30 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Leu | G1 v | Arg | Thr | Phe | Tvr | Thr | Thr | G1 v | | Va 1 | Tle | G1 v | Acn | | | |
| | CTA | GGG | AGG | ACA | TTT | TAT | ACA | ACA | GGA | GAA | GTA | ATA | CCA | CAT | ΔΤΔ | | |
| | | | | | | | | 11011 | 0011 | OI II I | OIN | nin | GGA | GAI | VIV | | |
| | | | | | | | | | | | | | | | | | |
| 35 | | | | | 35 | | | | | | | | • | | | | |
| | Arg | Gln | Ala | His | Cvs | | | | | | | | | | | | |
| | - | | GCA | | • | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | |
| 40 | (2) | | INF | ORMA' | TION | FOR | SEQ | ID 1 | 10: E | E324 | 4-2 | | | | | | |
| | | | (i) | | | | | | TER IS | | | | | • | | | |
| | | | | | (A) | | LEN | | 105 | | | | | | | | |
| | | | | | (B) | | TYPE | E: 1 | Nucle | ic A | Acid | | | | | | |
| 45 | | | | | (C) | | STRA | | ONESS | | Singl | l e | | | | | |
| -0 | | | | | (D) | | TOPO | DLOG | : I | ine | _ | | | | | | |
| | | | (ii) |) | KINI |): cI | DNA t | o ge | enomi | c Ri | AV | | | | | | |

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| 5 | | | (ii (iv | i) | (A) (B) (C) ORIC (E) IMMI | GINA: | SEQ FRA HYP L SO IND IND IE S | UENCE GMENE OTHE URCE IVIDI OURCE | T TY TICA: HIV UAL | SEMBI PE: L: | Int | ETHO! | | Over: | | · |
|----|-----|------------|-------------|------|---------------------------|--|---|--|-----------------------------|--------------------|-------|------------|---------|-------|--------|-----------|
| 10 | | | (v) (vi |) | PROI det | TTION PERT: ermin | IES (nant | GENO OF S | | VCE: | | | | | erved | antigenic |
| | | | (vi | ii) | SEQ | JENC | E DE | SCRI | PTIO | 1: | | | | | | |
| 15 | SEQ | ID I | NO: | EE3 | 24–2 | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| 00 | | Thr | Arg | Pro | - | Asn | Asn | Thr | Are | | Ser | T1e | His | Leu | | |
| 20 | | | | | | | | | | | | | | CTA | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| 25 | Pro | G1y | Arg | Ala | | Tyr | Thr | Thr | Gly | | Ile | Ile | G1y | Asp | | |
| 20 | | | | | | | | | | | | | | GAT | | • |
| 30 | - | Gln CAA | | | • | | | | | | | | | | | |
| | (2) | | INE | DMAT | rion | FOD | SEO | TD 1 | ۱ ۵۰ ۰ ا | . ני כי בו | 7 1 | | | | | |
| | (2) | | (i) | Mun. | | | | | rer i | | | | | | | |
| 35 | | | ,_, | | (A) | | LEN | | 10 | | | | | | | , |
| | | | | | (B) | | TYP | | Nucle | | | | | | | |
| | | | | | (C) | | | | ONES | _ | Sing. | le | | | | |
| | | | (ii) |) | (D) |): cī | | DLOGY | enomi | Linea C RN | | | | | | |
| 40 | | | (ii | | | | | | or | | |) : | | | | |
| | | | | | (A) | | | | | | | | | Over | | |
| | | | | | (B) | | | | TY | | Inte | ernal | l Fra | agmer | nt | |
| | | | (iii | i.) | | INAI | | | ICAI III: | _ | | | | | | |
| 45 | | | ` | -, | (E) | | | | JAL | | ATE: | | | | | |
| | | | (iv) |) | | EDIAT | E S | OURCI | | | | | | | | |
| | | | () | | (C) | · •• • • • • • • • • • • • • • • • • • | CLO | | ME - | 112 | | | | - | | |
| | | | (v) (vi) | | | | | | | | | | Gene | | | antigenic |
| 50 | | | (* 1 | • | dete | rmir | ant | וט זי | יתינו | · · · | EX. | hr egi | - C & (| CONS | er AGG | ancidenic |
| | | | (vii | li) | | | | SCRII | OITS | 1 : | | | | | | |

SEQ ID NO: EE327-1

1 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA 20 25 30 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Asp Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT GCA ACA GGA GAC ATA ATA GGA GAT ATA 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE327-2 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: _ (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE327-2 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly 45 TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA

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| | | | 20 25 30 | |
|------------|--------------|----------------|--|----|
| | Pro Gly | y Arg Ala | a Phe Tyr Ala Thr Gly Asp Ile Ile Gly Asp Ile | |
| | CCA GG | G AGA GCA | A TTT TAT GCA ACA GGA GAC ATA ATA GGA GAT ATA | |
| 5 | | | | |
| | | | 35 | |
| | Arg Glr | n Ala His | | |
| | | GCA CAT | | |
| 10 | | | | |
| | (2) | THEODIA | ATTON TOP OTO TO TO TO | |
| | (2) | informa (i) | ATION FOR SEQ ID NO: EE327-3 SEQUENCE CHARACTERISTICS: | |
| | | (1) | (A) LENGTH: 105 | |
| 15 | | | (B) TYPE: Nucleic Acid | |
| 15 | | | (C) STRANDEDNESS: Single | |
| | | | (D) TOPOLOGY: Linear | |
| | | (ii) | KIND: cDNA to genomic RNA | |
| | | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap | |
| 20 | | | (B) FRAGMENT TYPE: Internal Fragment | |
| | | | (C) HYPOTHETICAL: | |
| | | (iii) | ORIGINAL SOURCE: HIV | |
| | | (:) | (E) INDIVIDUAL ISOLATE: | |
| 25 | | (iv) | IMMEDIATE SOURCE: (C) CLONE: | |
| | | (v) | POSITION IN GENOME: Within Env Gene | |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigen | ic |
| | | | determinant | |
| 30 | | (viii) | SEQUENCE DESCRIPTION: | |
| • | | | | |
| | SEO ID | NO: EE3 | 327–3 | |
| | | | | |
| 35 | | | · · · · · · · · · · · · · · · · · · · | |
| | 1 Cvc Thr | A D | 5 10 15 | |
| | TGT ACA | AGA CCC | Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA | |
| | | | MINO AND ANT NOW HON HAN GGI ATA CAT ATA GGA | |
| 40 | | | | |
| +0 | | | 20 25 30 | |
| | Pro Gly | Arg Ala | Phe Tyr Ala Thr Gly Asp Ile Ile Gly Asp Ile | |
| | CCA GGG | AGA GCA | TTT TAT GCA ACA GGA GAC ATA ATA GGA GAT ATA | |
| | | | | |
| 4 5 | | | 35 | |
| | | Ala His | Cys | |
| | AGA CAA | GCA CAT | TGT | |
| | | | | |
| 50 | | | | |

| | (2) | INFORMA | ATION FOR SEQ ID NO: EE345-1 | |
|----|------------|----------|---|--|
| | | (i) | SEQUENCE CHARACTERISTICS: | |
| | | | (A) LENGTH: 105 | |
| 5 | | | (B) TYPE: Nucleic Acid | |
| J | | | (C) STRANDEDNESS: Single | |
| | | | (D) TOPOLOGY: Linear | |
| | , | (ii) | KIND: cDNA to genomic RNA | |
| | | (ii) | KIND (if peptide or protein): | |
| 10 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap | |
| 10 | | | (B) FRAGMENT TYPE: Internal Fragment | |
| | | | (C) HYPOTHETICAL: | |
| | | (iii) | ORIGINAL SOURCE: HIV | |
| | | | (E) INDIVIDUAL ISOLATE: | |
| 15 | | (iv) | IMMEDIATE SOURCE: | |
| 13 | | | (C) CLONE: | |
| | | (v) | POSITION IN GENOME: Within Env Gene | |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic | |
| | | | determinant | |
| 20 | | (viii) | SEQUENCE DESCRIPTION: | |
| | | | | |
| | SEQ ID | NO: EE3 | 45–1 | |
| 25 | | | | |
| | 1 | | 5 10 15 | |
| | Cys Thr | Arg Pro | Ser Asn Asn Thr Arg Lys Gly Ile His Ile Gly | |
| | TGT ACA | AGA CCC | AGC AAT AAT ACA AGA AAA GGT ATA CAT ATA GGG | |
| | | | | |
| 30 | | | •• | |
| | D 01 | | 20 25 30 | |
| | Pro Gly | Arg Ala | Phe Tyr Ala Thr Gly Glu Ile Thr Gly Asp Ile | |
| | CCA GGG | AGA GCA | TTT TAT GCA ACG GGA GAG ATA ACA GGA GAT ATA | |
| | | | | |
| 35 | | | 35 | |
| | Ara Gla | Ala His | | |
| | _ | GCA CAT | | |
| | 11011 0111 | OUN CHI | 101 | |
| | | | | |
| 10 | (2) | INFORMAT | TION FOR SEQ ID NO: EE345-2 | |
| | | (i) | SEQUENCE CHARACTERISTICS: | |
| | | \-, | (A) LENGTH: 105 | |
| | | | (B) TYPE: Nucleic Acid | |
| | | • | (C) STRANDEDNESS: Single | |
| 15 | | | (D) TOPOLOGY: Linear | |
| | | (ii) | KIND: cDNA to genomic RNA | |
| | | - | B | |

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| | | | (ii | .) | KIN (A) (B) | 1 | SEC | UENC | le or E AS | SEMB | LY M | ETHO | | Over | | | |
|----|-----|-----|----------------|------|-------------------|--------------|------|-------|---------------|-------------|-----------|------|------|------------|--------------|----------|----|
| 5 | | | | | (c) | | | | TICA | | 111 C | erma | I FI | agme | in L | | |
| | | | (ii | i) | | GINA | L SO | URCE | : HI | V | ATE: | | | | | | |
| | | | (iv |) | | EDIA | | OURC | | | | | | | | | |
| 10 | | | (v) | | | | | | OME: | | | | | | | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigen: | ic |
| | | | (vi | ii) | | ermi UENC | | | PTIO | N: | | | | | | | |
| 15 | SEQ | ID | NO: | EE3 | 45-2 | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | | | |
| 20 | | Thr | Arø | Pro | Ser | Aen | Acn | Th∽ | A = ~ | 10 | C1 | T1. | m: _ | 71. | 15 | | |
| 20 | TGT | ACA | AGA | CCC | AGC | AAT | AAT | ACA | AGA | AAA | GCT | ATA | CAT | ATA 116 | GIA | | |
| | | | | | | | | | | | 001 | nin | Oni | NIN | GGG | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | | |
| 25 | Pro | G1y | Arg | Ala | Phe | Phe | Thr | Thr | Gly | Glu | Ile | Thr | G1y | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | TTT | TTT | ACA | ACA | GGA | GAA | ATA | ACA | GGA | GAT | ATA | | |
| | | | | | 35 | | | | | | | | | | | | |
| 30 | | | Ala | | | | | | | | | | | | • | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| | (2) | | INFO | RMA! | TION | FOR | SEQ | ID N | 10: E | EE345 | 5–3 | | | | | | |
| 35 | | | (i) | | SEQU | ENCE | CHA | ARAC' | TERIS | TICS | 5: | | | | | | |
| | | | | | (A) | | LENC | | 105 | | | | | | | | |
| | | | | | (B) | | | | luc1e | | | | | | | | |
| | | | | | (D) | | | DLOGY | NESS | : S inea | ingl | .e | | | | | |
| | | | (ii) | ı | |): cI | | | nomi | | | | | | | | |
| ю | | | (ii) | | | | | | or | | | : | | | • | | |
| | | | | | (A) | | SEQU | ENCE | ASS | EMBL | Y ME | THOD |): C | ver1 | ap | | |
| | | | | | (B) | | FRAG | MENT | TYP | E: | Inte | rna1 | Fra | gmen | t | | |
| | | | | | (C) | | | | ICAL | | | | | | | | |
| 5 | | | (iii |) - | ORIG | | | | | | | | | | | | |
| | | | (iv) | | IMME | DTAT | E SU | VIDOE | AL I | SOLA | TE: | | | | | | |
| | | | \ - • / | | (C) | | CLON | | • | | | | | | | | |
| | | | (v) | | POSI | TION | IN | GENO | ME: | With | in E | nv G | ene | • | | | |
| 0 | | | (vi) | | PROP | ERTI | ES O | F SE | QUEN | CE: | Exp | ress | es c | onse | rved | antigeni | c |
| - | | | , | | uete | rmin | ant | | | | • | _ | _ | | | | - |
| | | | (vii | 1) | SEQU | ENCE | DES | CRIP | TION | : | | | | | | | |

SEQ ID NO: EE345-3

| | 1 | | 5 | | 10 | 15 | |
|-----------|--------------|------------------------------------|---|---|--|--|-----------|
| 5 | | or Ara Pro | | en Thr Ara | | His Ile Gly | |
| | | | | | | A CAT ATA GGG | |
| | IGI A | A AGA CCC | , AGC AAI A | AI ACA AGA | AAA AGI AIA | A CAI AIA GGG | |
| | | | | | | | |
| | | | 20 | | | 20 | |
| 10 | D | - A A 1 | 20 | 1 70 61 | 25 | 30 | |
| | | | | | | Gly Asp Ile | |
| | CCA GG | G AGA GCA | III IAI G | JA AUG GGA | GAG ATA ACA | GGA GAT ATA | |
| | | | | | | | |
| | | | 25 | | | | |
| 15 | | | 35 | | | | |
| | | n Ala His | | | | | |
| | AGA CA | A GCA CAI | TGT | | | | |
| | | | | | | | |
| | 4-5 | | | | | | |
| | (2) | | TION FOR SE | | | | |
| 20 | | (i) | | CHARACTERI | STICS: | | |
| | | | | ENGTH: 10 | | | |
| | | | | TPE: Nucle | | | |
| | | | | TRANDEDNES: | S: Single | | |
| | | | (D) TO | POLOGY: 1 | Linear | | |
| 25 | | (ii) | KIND: cDNA | to genom | ic RNA | | |
| | | (ii) | KIND (if p | eptide or | | | |
| | | | | | | | |
| | | | | QUENCE ASS | SEMBLY METHO | D: Overlap | |
| | | . , | (A) SE | QUENCE ASS AGMENT TY | SEMBLY METHO PE: Interna | D: Overlap 1 Fragment | |
| | | ,, | (A) SE (B) FR | EQUENCE ASS AGMENT TYPE POTHETICAL | E: Interna | D: Overlap 1 Fragment | |
| 30 | | (iii) | (A) SE (B) FR | AGMENT TYI POTHETICAI | E: Interna | D: Overlap 1 Fragment | |
| 30 | | | (A) SE (B) FF (C) HY ORIGINAL S | AGMENT TYI POTHETICAI | PE: Interna | D: Overlap 1 Fragment | |
| 30 | | | (A) SE (B) FF (C) HY ORIGINAL S | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL 1 | PE: Interna | D: Overlap 1 Fragment | |
| 30 | | (iii) | (A) SE (B) FF (C) HY ORIGINAL S (E) IN IMMEDIATE | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL 1 | PE: Interna | D: Overlap 1 Fragment | · |
| 30 | | (iii) | (A) SE (B) FF (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL D SOURCE: | PE: Interna | 1 Fragment | · |
| <i>30</i> | | (iii) (iv) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL POSITION I | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL D SOURCE: ONE: N GENOME: | PE: Interna .: .: .: .: .: .: .: .: .: .: .: .: .: | 1 Fragment | antigenic |
| | | (iii) (iv) (v) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL POSITION I PROPERTIES | AGMENT TYPE POTHETICAL SOURCE: HIVE SOURCE: ONE: N GENOME: | PE: Interna .: .: .: .: .: .: .: .: .: .: .: .: .: | 1 Fragment | antigenic |
| | | (iii) (iv) (v) (vi) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL POSITION I PROPERTIES determinan | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| | | (iii) (iv) (v) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL POSITION I PROPERTIES | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| | | (iii) (iv) (v) (vi) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CL POSITION I PROPERTIES determinan | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| | SEO ID | (iii) (iv) (v) (vi) (viii) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| 35 | SEQ ID | (iii) (iv) (v) (vi) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| 35 | SEQ ID | (iii) (iv) (v) (vi) (viii) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna S: SOLATE: Within Env | 1 Fragment | antigenic |
| 35 | SEQ ID | (iii) (iv) (v) (vi) (viii) | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIV DIVIDUAL I SOURCE: ONE: IN GENOME: OF SEQUEN | PE: Interna | 1 Fragment Gene ses conserved | antigenic |
| 35 | 1 | (iii) (iv) (v) (vi) (viii) NO: EE3 | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIVE SOURCE: ONE: IN GENOME: OF SEQUENT OESCRIPTION | PE: Interna :: SOLATE: Within Env ICE: Expres | 1 Fragment Gene ses conserved | antigenic |
| 35 | 1 Cys Ile | (iii) (iv) (v) (vi) (viii) NO: EE3 | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL DESOURCE: ONE: IN GENOME: OF SEQUENT OF SEQUENTED | PE: Interna :: | 1 Fragment Gene ses conserved 15 Thr Ile Gly | antigenic |
| 35 | 1 Cys Ile | (iii) (iv) (v) (vi) (viii) NO: EE3 | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL DESOURCE: ONE: IN GENOME: OF SEQUENT OF SEQUENTED | PE: Interna :: | 1 Fragment Gene ses conserved | antigenic |
| 35 | 1 Cys Ile | (iii) (iv) (v) (vi) (viii) NO: EE3 | (A) SE (B) FR (C) HY ORIGINAL S (E) IN IMMEDIATE (C) CI POSITION I PROPERTIES determinan SEQUENCE D | AGMENT TYPE POTHETICAL SOURCE: HIVE DIVIDUAL DESOURCE: ONE: IN GENOME: OF SEQUENT OF SEQUENTED | PE: Interna :: | 1 Fragment Gene ses conserved 15 Thr Ile Gly | antigenic |

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| | _ | | | | 20 | | | | | 25 | | | | | 30 | | | |
|------------|----------|-----------|-------|--------|------------|----------|-------|------|-------|-------|-------|-------|-------|-------|-------|-----|--------|--|
| | Pro | Gly | y Ar | g Ala | a Pho | Phe | Ala | a Th | r Gly | 7 G1u | ı Ile | Thr | G1y | Asp | Ile | | | |
| | CCA | 1 GG(| i AG | A GC | A 1"1". | r TT. | r GCA | A AC | A GGA | A GAA | ATA | ACA | GGA | GAI | ATA | | | |
| 5 | | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | | |
| | Aro | , G1, | . Δ1. | . Hic | S Cya | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | r TG1 | , | • | | | | | | | | | | | |
| | 1101 | . 0.1 | | 1 0/1. | . 10. | • | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | |
| | (2) | : | INE | ORMA | TION | FOR | SEO | ID | NO: | EE35 | 6-2 | | | | | | | |
| | | | (i) |) | SEC | UENC | E CH | ARAC | TERI | STIC | S: | | | | | | | |
| | | | | | (A) |) | | GTH: | | | | | | | | | | |
| 15 | | | | | (B) |) | TYP | E: | Nuc1 | eic | Acid | | | | | | | |
| | | | | | (C) | | STR | ANDE | DNES | S: | Sing | 1e | | | | • | | |
| | | | | | (D) | | | OLOG | | Line | | | | | | | | |
| | | | (ii | | | | | | enom | | | _ | | | | | | |
| | | | (ii | .) | KIN | D (i | f pe | ptid | e or | pro | tein |): | | | | | | |
| 20 | | | | | (A) | | SEQ | UENC | E AS | SEMB | | ETHO | | | | | | |
| | | | | | (B) (C) | | | | T TY | | Int | erna: | L Fra | agme | nt | | | |
| | | | (ii | i) | | | | | : HI | | | | | | | | | |
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| | | | (iv |) | | | TE S | | | 10011 | | | | - | | | _ | |
| 25 | | | | | (C) | | CLO | | | | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin l | Env (| Gene | - | | | | |
| | | | (vi |) | | | | | | | | | | conse | erved | ant | igenio | |
| | | | _ | | det | ermı | nant | | | | _ | - | | | | | | |
| 30 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | SEO | ID | NO. | FF3 | 56-2 | | | | | | | | | | | | | |
| | DDQ | | | DUJ. | JU-2 | | | | | | | | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | | |
| | Cys | Ile | Arg | Pro | Ser | Asn | Asn | Thr | Arg | | Ser | Ile | Thr | Tle | G1 v | | | |
| | TGT | ATA | AGA | CCC | AGC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | ACT | ATA | GGA | | | |
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| 40 | | | | | | | | | | | | | | | | | | |
| | 5 | 61 | | | 20 | | | | | 25 | | | | | 30 | | | |
| | CCA | CCC | Arg | ATA | Phe | Phe | Ala | Thr | Gly | Glu | Ile | Thr | Gly | Asp | Ile | | | |
| | CCA | GGG | AGA | GCA | 111 | 111 | GCA | ACA | GGA | GAA | ATA | ACA | GGA | GAT | ATA | | | |
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| | Arg | Gln | Ala | His | | | | | | • | | | | | | | | |
| | AGA | | | | | | | | | | | | | | | | | |
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| 5 | (2) | (ii) (ii) (iii) | TION FOR SEQ ID NO: EE356-3 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: | | | | | | | | | | |
|----|--------|-----------------------|--|--|--|--|--|--|--|--|--|--|--|
| 15 | | (iv) (v) (vi) | IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic | | | | | | | | | | |
| 20 | | (viii) | determinant SEQUENCE DESCRIPTION: | | | | | | | | | | |
| | SEQ ID | NO: EE35 | 56–3 | | | | | | | | | | |
| 25 | | | 5 10 15 Ser Asn Asn Thr Arg Lys Ser Ile Thr Ile Gly AGC AAC AAT ACA AGA AAA AGT ATA ACT ATA GGA | | | | | | | | | | |
| 30 | | | 20 25 30 Phe Phe Ala Thr Gly Glu Ile Thr Gly Asp Ile TTT TTT GCA ACA GGA GAA ATA ACA GGA GAT ATA | | | | | | | | | | |
| 35 | | Ala His GCA CAT | | | | | | | | | | | |
| 40 | (2) | INFORMAT | ION FOR SEQ ID NO: EE359-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid | | | | | | | | | | |
| 45 | | (ii) | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA | | | | | | | | | | |

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| | | | (ii |) | (A) | | SEC | UENC | e or | SEMB | LY M | ETHO | D: | 0ver | lap | | |
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| 5 | | | | | (B) (C) | | | | T TY | | Int | erna | l Fr | agme | ent | | |
| | | | (ii | i) | | GINA | L SO | URCE | : HI | V | ATE: | | | | | | |
| | | | (iv |) | | EDIA | | OURC | | | | | | | · | | |
| 10 | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | _ | | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigen | ic |
| | | | (373 | ii) | | | nant | COD T | חשאס | NT - | | | | | | | |
| | | | (• 1 | 11) | SEQ | OEMC | e de | SCKI | PTIO | N: | | | | | | | |
| 15 | SEQ | ID | NO: | EE3 | 59–1 | | | | | | | | | | | | |
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| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| 20 | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Ser | Ile | Asn | Ile | G1y | | |
| | 161 | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AGA | AGT | ATA | AAT | ATA | GGA | | |
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| | | | | | 20 | | | | | 25 | | | | | 30 | | |
| 25 | Pro | G1 y | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Asp | Ile | Ile | Gly | Asp | Tle | | |
| | CCA | GGG | AGA | GCC | TTT | TAT | GCA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | | |
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| | | | | | 35 | | | | | | | | | | | | |
| 30 | | | Ala | | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
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| | (2) | | INFO | RMA: | TION | FOR | SEO | ID N | 10: F | E359 |) - 2 | | | | | | |
| 15 | | | (i) | | SEQU | ENCE | CHA | RACT | ERIS | STICS |) | | , | | | | |
| - | | | | | (A) | | LENG | TH: | 105 | i | | | | | | | |
| | | | | | (B) | | TYPE | | lucle | | cid | | | | | | |
| | | | | | (D) | | | | NESS | | Singl | .е | | | | | |
| _ | | | (ii) | | KIND | : cT | | LOGY | | inea | | | | | | | |
| 0 | | | (ii) | | KIND | (if | Der | tide | or | prot | ein) | ١• | | | | | |
| | | | | | (A) | , | SEQU | ENCE | ASS | EMBL | Y ME | THOD |): O | ver1 | AD. | | |
| | | | | | (B) | | FRAG | MENI | TYP | E: | Inte | rnal | Fra | gmen | t | | |
| | | | | | (C) | | | | ICAL | : _ | | | | <u> </u> | | | |
| 5 | | | (iii |) | ORIG | INAL | | | | | | | | | | | |
| | | | (iv) | | (E) IMME | ከተልጥ | E CO | ATDU | AL I | SOLA | TE: | | | | | | |
| | | | \ - \ / | | (C) | | CLON | | • | | | | | | | | |
| | | | (v) | | POSI | | | | ME: | With | in F | nv C | ene | | | | |
| 0 | | | (vi) | | PROP | ERTI | ES O | F SE | QUEN | CE: | Exp | rese | es c | លាទទ | rved | antigeni | |
| U | | | | | aete. | rmın | an t | | | | | | | J0 C | ~ + Gu | our TREU | LC |
| | | | (vii | i) | SEOU | ENCE | DES | CRIP | TION | • | | | | | | | |

SEQ ID NO: EE359-2

| 5 | | | 5 Asn Asp Asn 3 AAC GAC AAT A | | | |
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| 10 | | | 20 Phe Tyr Ala 7 TTT TAT GCA A | | | |
| 15 | - | Ala His GCA CAT | _ | | | |
| 20 | (2) | INFORMA | TION FOR SEQ I SEQUENCE CHAR (A) LENGI (B) TYPE: (C) STRAN | RACTERISTICS TH: 105 : Nucleic A | cid | |
| 25 | | (ii) (ii) | (D) TOPOL KIND: cDNA to KIND (if pept (A) SEQUE | LOGY: Linea genomic RN ide or prot ENCE ASSEMBL | Ά | |
| 30 | | (iii) (iv) | (C) HYPOT ORIGINAL SOUR | THETICAL: _ RCE: HIV VIDUAL ISOLA VRCE: | | * |
| 35 | | (v) (vi) (viii) | POSITION IN G | ENOME: With SEQUENCE: | | onserved antigenic |
| 40 | SEQ ID 1 | NO: EE3! | 59–3 | | | |
| 4 5 | 1 Cys Thr TGT ACA | Arg Pro AGA CCC | 5 Asn Asp Asn T AAC GAC AAT A | 10 hr Arg Arg CA AGA AGA | Ser Ile Asn AGT ATA AAT | 15 Ile Gly ATA GGA |

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| | Pro | G1 y | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Asp | Ile | Ile | Gly | Asp | Ile | | | |
| | | | AGA | | | | | | | | | | | | | | | |
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| | (2) | | INFO | ORMA" | TION | FOR | SEO | ID I | NO: 1 | EE360 |)-1 | | | | | | | |
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| | | | _/ | | (A) | | LEN | | 10 | | | | | | | | | |
| | | | | | (B) | | TYPI | | Vuc1e | | Acid | | | | | | | |
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| 20 | | | | | (B) | | | | r TY | | | ernal | | | | | | |
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| | | | (iii | :) | | TNIAI | | | HIV | _ | | | | | | | | |
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| 25 | | | (IV. | , | (C) | אועט. | CLO | - | <u>.</u> | | | | | | | | | |
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| | | | (v) | | POS | | | | | | | Env (| | 2025 | · ···································· | 22. | iaar | |
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| 30 | | | (vi) | | POS! PROI dete | PERT: | (ES (nant | OF SI | | NCE: | | | | conse | erved | ant | iger | nic |
| 30 | | | (vi) |) | POS! PROI dete | PERT: | (ES (nant | OF SI | EQUEI | NCE: | | | | conse | erved | ant | iger | nic |
| 30 | SEO | י חד | (vi) |) Li) | POS! PROI dete SEQI | PERT: | (ES (nant | OF SI | EQUEI | NCE: | | | | conse | erved | ant | iger | nic |
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| 30 | SEQ | ID I | (vi) |) Li) | POS! PROI dete SEQI | PERT: | (ES (nant | OF SI | EQUEI | NCE: | | | | conse | erved | ant | iger | nic |
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| | 1 Cys | Thr | (vi) (vii |) Li) EE36 Pro | POS: PROI dete SEQI | PERT: ermin JENCI | IES (nant E DE: | OF SI | EQUEI PTIOI Arg | NCE: N: 10 Lys | Ex | press Ile | His | Ile | 15 Ala | ant | iger | nic |
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| | 1 Cys | Thr | (vi) (vi) (vi) |) Li) EE36 Pro | POS: PROI dete SEQI 50-1 Ser AGC | PERT: ermin JENCI | IES (nant E DE: | OF SI | EQUEI PTIOI Arg | NCE: N: 10 Lys AAA | Ex | press Ile | His | Ile | 15 Ala GCA | ant | iger | nic |
| 35 | 1 Cys TGC | Thr ACA | (vi) (vi) (vi) Arg AGG | Pro | POS: PROI dete SEQI 60-1 5 Ser AGC | PERT: PERT: PENC! ASD ASD | Asn AAT | Thr | Arg AGA | NCE: 10 Lys AAA | Exp Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 | ant | iger | nic |
| 35 | 1 Cys TGC | Thr ACA | (vi) (vi) (vi) Arg Arg | Pro CCC | POS: PROI dete SEQI 60-1 5 Ser AGC | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 | 1 Cys TGC | Thr ACA | (vi) (vi) (vi) Arg AGG | Pro CCC | POS: PROI dete SEQI 60-1 5 Ser AGC | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 | 1 Cys TGC | Thr ACA | (vi) (vi) (vi) Arg Arg | Pro CCC | POS: PROI dete SEQI 60-1 5 Ser AGC | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 | 1 Cys TGC | Thr ACA | (vi) (vi) (vi) Arg Arg | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 40 | 1 Cys TGC | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGG | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 40 | 1 Cys TGC Pro CCA | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGG Arg AGA | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT 35 Cys | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 40 | 1 Cys TGC Pro CCA | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGG | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT 35 Cys | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 40 | 1 Cys TGC Pro CCA | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGG Arg AGA | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT 35 Cys | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |
| 35 40 | 1 Cys TGC Pro CCA | Thr ACA Gly GGG | (vi) (vi) (vi) Arg AGG Arg AGA | Pro CCC | POS: PROI dete SEQI 50-1 5 Ser AGC 20 Phe TTT 35 Cys | Asn AAC | Asn AAT | Thr ACA | Arg AGA | NCE: 10 Lys AAA 25 | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Ala GCA 30 Ile | ant | iger | nic |

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| | (2) | | INF | ORMA | TION | FOR | SEQ | ID | NO: | EE36 | 0-2 | | | | | |
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| | | | (i) | | SEQ | UENC | E CH | ARAC | TERI | STIC | S: | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | |
| | | | | | (B) | | TYP | | Nuc1 | | Acid | | | | | |
| 5 | | | | | (C) | | STR | ANDE | DNES | S: | Sing | 1e | | | | |
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| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | NA | | | | | |
| | | | (ii |) | KIN | D (i | f pe | ptid | e or | pro | tein |) : | | | | |
| | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | Over | lap | |
| 10 | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | nt | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | |
| | | | (ii | i) | ORIG | GINA | L SO | URCE | : HI | V | | | | | | |
| | | | | | (E) | | IND | IVID | UAL | ISOL | ATE: | | | | | |
| | | | (iv |) | IMM | EDIA | TE S | OURC | E: | | | | | | | |
| 15 | | | | | (C) | | CLO | NE: | | | | | | _ | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env | Gene | | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigenic |
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| | | | (vi | ii) | SEQ | JENC: | E DE | SCRI | PTIO | N: | | | | | | |
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| 40 | (2) | | TRIE | ODMA' | rion | FOD | CEA | TD I | MO • 1 | FF 261 | n 2 | | | | | |
| | (2) | | (i) | | | | | ARAC' | | | | | | | | |
| | | | (1) | | (A) |) Eu (C) | | GTH: | 10 | | ٥. | | | | | |
| | | | | | (B) | | TYP | | Nuclo | | A ~ : ~ | | | | | |
| | | | | | (C) | | | ANDE | | | Sing | 1 | | | | |
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| 10 | | | (v) (vi |) | (C) POS PRO det | ITIO PERT ermi: | CLO N IN IES nant | GEN OF S | OME: EQUE | NCE: | hin Ex | Env pres | Gene ses | cons | erved | antig | enic |
| 15 | SEQ | ID : | NO: | ii) EE3 | | JENC: | E DE | SCRI | PTIO | N: | | | | | | | |
| | 1 | | | | E | | | | · | • • • | | | | | | | |
| | _ | Thr | Arg | Pro | 5 Ser | Asn | Asn | Thr | A = 0 | 10 | Sor | T16 | Wie. | 71. | 15 | | |
| 20 | TGC | ACA | AGG | CCC | AGC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GCA | | |
| | | | | | 00 | | | | | | | | | | | | |
| | Pro | G1 v | Arg | ۵1ء | 20 Phe | Tur | Th- | Th- | C1 | 25 | T1 - | 77°L | 01 | A - | 30 | | |
| 25 | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GCA | ATA | ACA | GGA | GAT | ATA | | |
| 30 | | | Ala GCA | | | | | | | | | ` | | | | | |
| | (2) | | INFO | RMA] | TION | FOR | SEQ | ID N | 10: E | E367 | '-1 | | | | | | |
| 35 | | | (i) | | (A) (B) (C) | | LENG TYPE STRA | TH: : N NDEL | ERIS 105 Jucle NESS | ic A | cid ingl | .e | | | | | |
| 10 | | | (ii) (ii) | | (D) KIND KIND | : cD | NA t pep | o ge | or | c RN prot | A ein) | : | | | | | |
| | | | | | (A) (B) (C) | | FRAG HYPO | MENT THET | 'TYP 'ICAL | E: : | Y ME Inte | THOD rna1 | Fra | verl gmen | ap t | | |
| 15 | | | (iii |) | ORIG | | | | | | mr. | | | | | | |
| | | | (iv) | | IMME: | DIAT | E SO CLON | URCE | AL I | JULA. | TE! | | <u> </u> | | | | |
| | | | (v) | | POSI | | | | ME: | With | in F | nv C | | | | | |
| o | | | (vi) | | PROP: | ERTI | ES O | F SE | QUEN | CE: | Exp | ress | es c | onse | rved | antige | nic |
| | | | (vii: | | SEQU | | | CRIP | TION | : | | | | | | | |

SEQ ID NO: EE367-1

1 5 10 15 Cys Thr Arg Pro Asn Asn Thr Ile Lys Ser Ile His MET Gly TGT ACA AGA CCC AAC AAC AAT ACA ATA AAA AGT ATA CAT ATG GGA 20 25 30 10 Leu Gly Arg Thr Phe Tyr Thr Thr Gly Glu Val Ile Gly Asp Ile CTA GGG AGG ACA TTT TAT ACA ACA GGA GAA GTA ATA GGA GAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE367-2 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single TOPOLOGY: Linear (D) 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment (B) (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene 35 PROPERTIES OF SEQUENCE: Expresses conserved antigenic (vi) determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE367-2 5 10 1 Cys Thr Arg Pro Asn Asn Asn Thr Ile Lys Ser Ile His MET Gly 45 TGT ACA AGA CCC AAC AAC AAT ACA ATA AAA AGT ATA CAT ATG GGA

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| | | | | | 20 |) | | | | 25 | 5 | | | | 30 | | |
|----|-----|-----------|-------|-----|------|----------|------------|------|-------|-------|-------|-------|------|-------|--------------|-------|-------|
| | Let | ı Gly | , Arε | The | Phe | Tyr | Thr | Th | r G13 | 7 G1: | ı Val | l Ile | : G1 | 7 Ası | Ile | | |
| | CTA | GGG | AGG | ACA | TTI | TAT | ACA | ACA | A GG | A GAA | GTA | ATA | GGA | GA? | ATA | | |
| 5 | | | | | | | | | | | | | | | | | |
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| | | | | | 35 | | | | | | | | | | | | |
| | | | | | Сув | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAI | TGT | ı | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
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| | (2) | | | | TION | | | | | | | | | | | | |
| | | | (i) | | | UENC | E CH | ARAC | TERI | STIC | s: | | | | | | |
| | | | | | (A) | | | GTH: | | - | | | | | | | |
| 15 | | | | | (B) | | TYP | | | eic | Acid | | | | | | |
| | | | | | (C) | | | | DNES | | Sing | 1e | | | | | |
| | | | | | (D) | | | | | Line | | | | | | | |
| | | | (ii | | | D: c | | | | | | _ | | | | | |
| | | | (ii |) | | D (i | f pe | ptid | e or | pro | tein |): | | | | | |
| 20 | | | | | (A) | | | | | | | ETHO | | | | | |
| | | | | | (B) | | | | | PE: | Int | erna | l Fr | agme | nt | | |
| | | | (ii | ٠, | (C) | O TREA : | | | TICA | | | | | | | | |
| | | | (11 | 1) | (E) | GINA | | | | | | | | | | | |
| | | | (iv | ` | | EDIA: | | | | ISÓL | ATE: | | | | - | | |
| 25 | | | (14 | , | (C) | EDIA. | CLO | | E: | | | | | | | - | |
| | | | (v) | | , | וחדח | | | OME . | Wii + | h.i. | Env (| 7 | _ | | | |
| | | | (vi | | PROI | PERT | TES (| OE S | FOIL. | MIC. | LITH. | DECC. | -ene | | | antig | • |
| | | | ` - | | dete | ermin | nant | J. D | LQUL | IICE. | LA | bres | 568 | COMB | ervea | antig | genic |
| 30 | | | (vi: | ii) | | JENCI | | SCRT | PTIO | N: | | | | | | | |
| 30 | | | • | • | • | | - . | | 0. | | | | | | | | |
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| | SEQ | ID N | : 01 | EE3 | 57-3 | | | | | | | | | | | | |
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| 35 | | | | | | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Ile | Lys | Ser | Ile | His | MET | G1v | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | ATA | AAA | AGT | ATA | CAT | ATG | GGA | | |
| | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | |
| | _ | :_ | | | 20 | | | | | 25 | | | | | 30 | | |
| | Leu | Gly | Arg | Thr | Phe | Tyr | Thr | Thr | Gly | G1u | Val | I1e | G1y | Asp | Ile | | |
| | CTA | GGG | AGG | ACA | TTT | TAT | ACA | ACA | GGA | GAA | GTA | ATA | GGA | GAT | ATA | | |
| | | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | |
| | A | 61 | | | 35 | | | | | | | | | | | | |
| | | Gln | | | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | IGT | | | | | | | | | | | | |
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| 50 | | | | | | | | | | | | | | | | * | |

| 5 | (2) | INFORMA | ATION FOR SEQ ID NO: EE370-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |
|----|-------------------------|---------------------|---|--|
| 10 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: | |
| 15 | | (iii) (iv) (v) (vi) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic | |
| 20 | | (viii) | determinant | |
| | SEQ ID 1 | NO: EE3 | 70–1 | |
| 25 | 1 Cys Thr TGT ACA | Arg Pro AGA CCC | 5 10 15 Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA | |
| 30 | Pro Gly CCA GGA | Arg Ala AGA GCA | 20 25 30 Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile TTT TAT ACA ACA GGA GAC ATA ATA GGA GAT ATA | |
| 35 | Arg Gln AGA CAA | Ala His GCA CAT | | |
| 40 | (2) | INFORMAT | TION FOR SEQ ID NO: EE370-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid | |
| 45 | | (ii) | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA | |

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| | | | (ii |) | (A) (B) | D (i: | SEQ | UENC | | SEMB: | LY M | ETHO: | | Over: agmen | - | |
|------------|----------|------|-------|-------|-------------|---------------|-------------|-------|----------------------|-------|---------------|-------|---------|----------------|-------------|-----------|
| 5 | | | (ii | i) | (C) ORIG | | L SO | URCE | TICA: : HI UAL | V | ATE • | | | | | |
| | | | (iv |) | | | | OURC | | 1301 | AIE: | | | | | |
| 10 | | | (v) | | POS | ITIOI | NI N | GEN | OME: | Wit | hin 1 | Env (| Gene | _ | | |
| | | | (vi |) | | | | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigenic |
| | | | (vi | ii) | | ermi: UENC | | SCRI | PTIO | N : | | | | | | |
| 15 | SEQ | ID I | NO: | EE3 | 70–2 | | | | | | | | | | | |
| | • | | | | - | | | | | 10 | | | | | 1.5 | |
| | 1 Cvc | The | A = a | Pro | 5 Asn | Acn | Acn | Thr | A ~~~ | 10 | 50= | T10 | ui. | Ile | 15 C1 w | |
| 20 | | | | | | | | | | | | | | ATA | | |
| | | | | | | | | | | | | | | | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| 0.5 | Pro | Gly | Arg | Ala | | Tyr | Thr | Thr | G1y | | Ile | Ile | G1y | Asp | | |
| 25 | CCA | GGA | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
| | | | | | 35 | | | | | | | | | | | |
| | Arg | G1n | Ala | His | Cys | | | | | | | | | | | |
| 30 | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | |
| | (2) | | | ORMAT | rion | FOR | SEQ | ID 1 | NO: 1 | EE370 | 0–3 | | | | | |
| 35 | | | (i) | | | JENCI | | | rer I | | 3: | | | | | |
| • | | | | | (A) (B) | | LENO TYP | | 10! Nucle | | | | | | | |
| | | | | | (C) | | | | DNES | | scia Sing: | م ا | | | | |
| | | | | | (D) | | | | Y:] | | | 16 | | | | |
| | | | (ii) |) | | | | | enom: | | | | | | | |
| 40 | | | (ii |) | | | | | e or | | | | | | | |
| | | | | | | | SEQ | UENCI | E ASS | | | | | Over: | | |
| | | | | | (C) | | | | r TYI | | Inte | erna. | l Fra | agmer | nt | |
| | | | (iii | i) | | INA | | | : HIV | | | | | | | |
| 4 5 | | | ` | -, | (E) | | | | | | ATE: | | | | | |
| | | | (iv |) | | | CE S | OURCI | | | | | | | | |
| | | | , , | | (C) | | CLO | | | | | | | _ | | |
| | | | (v) | | | | | | | | | Env (| | | _ | |
| 50 | | | (vi) | , | | ERT. | | or Si | LQUEI | WUE: | Exp | pres | ses (| cons | erved | antigenic |
| | | | (vi | ii) | | | | SCRTI | PTIO | J: | | | | | | |

SEQ ID NO: EE370-3

5 10 5 Cys Thr Arg Pro Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA 20 25 30 10 Pro Gly Arg Ala Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile CCA GGA AGA GCA TTT TAT ACA ACA GGA GAC ATA ATA GGA GAT ATA 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE374-1 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene 35 (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE374-1 10 Cys Ile Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ATA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA

| | | | | | 20 | | | | | 25 | , | | • | | 30 | | |
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| | Pro | G1: | y Arg | g Ala | Phe | Tyr | Thr | Thi | c G13 | Thr | Ile | lle | G1v | Asp | Ile | | |
| | CCA | GG | G AGA | GCA | TTT | TAT | ACA | ACA | GGA | ACA | ATA | ATA | GGA | GAT | ATA | | |
| 5 | | | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | | |
| | Arg | G1r | ı Ala | His | Cys | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAI | TGT | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | |
| ,, | | | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA | TION | FOR | SEQ | ID | NO: | EE37 | 4-2 | | | | | | |
| | | | (i) | | SEQ | UENC: | E CH | ARAC | TERI | STIC | s: | | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | | |
| 15 | | | | | (B) | | TYP | E: | Nuc1 | eic . | Acid | | | | | | |
| | | | | | (C) | | STR | ANDE | DNES | s: | Sing | le | | | | | |
| | | | | | (D) | | TOP | OLOG | Y: | Line | _ | | | | | | |
| | | | (ii | | KIN | D: cl | DNA | to g | enom | ic R | NA | | | | | | |
| | | | (ii |) | KIN |) (i: | f pe | ptid | e or | pro | tein |): | | | | | |
| 20 | | | | | ·(A) | | SEQ | UENC | E AS | SEMB: | LY M | ETHO: | D: (| verl | ap | • | |
| | | | | | (B) | | | | | PE: | | | | agmen | | | |
| | | | | | (C) | | | | TICA | | | | | | | | |
| | | | (ii | i) | | SINA) | SOI | URCE | : HI | V | | | | | | | |
| | | | _ | | (E) | * | | | | ISOL | ATE: | | | | | | |
| 25 | | | (iv |) | | EDIAT | CE SO | OURC | E: | | | | | | | | |
| | | | | • | (C) | | CLO | | | | | | | _ | | | |
| | | | (v) | | | | | | | | | Env (| | | | | |
| | | | (vi |) | PROF | 'ERT | ES (| OF S | EQUE | NCE: | Ex | pres | ses o | conse | rved | antigenic | |
| | | | | | dete | rmin | ant | | | | | | | | | _ | |
| 30 | | | (vi | ii) | SEQU | JENCE | DES | SCRI | PTIO | N: | | | | | | | |
| | 050 | | | | | | | | | | | | | | | | |
| | SEQ | ID : | NO: | EE3 | 74-2 | | | | | | | | | | | | |
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| 35 | - | T1 - | A | _ | 5 | | | _ | | 10 | | | | | 15 | | |
| | Cys | 116 | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | G1y | | |
| | 161 | AIA | AGA | CCC, | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 10 | Dec | C1 | A | A 1 - | 20 | m | - | | | _25 | | | | | 30 | | |
| | CCV | CCC | ACA | ATA | rne | Tyr | Ihr | Thr | Gly | Thr | Ile | Ile | Gly | Asp | Ile | | |
| | CCA | GGG | AGA | GCA | 111 | TAT | ACA | ACA | GGA | ACA | ATA | ATA | GGA | GAT | ATA | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | 25 | | | | | | | | | | | | |
| ‡ 5 | Ara | C1- | ۸1. | His | 35 | | | | | | | | | | | | |
| | _ | | | CAT | - | | | | | | | | | | | | |
| | nun | Onn | GUM | ONI | 161 | | | | | | | | | | | | |
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| | (2) | INFO | ORMATION | FOR SEQ ID | NO: EE37 | 4-3 | | |
|------------|--------|----------|-----------|--------------------------|------------------|---------|--------------|---------------|
| | | (i) | SEQU | ENCE CHARAC | TERISTIC | S: | | |
| | | | (A) | LENGTH: | 105 | | | |
| | | | (B) | TYPE: | Nucleic . | Acid | | |
| 5 | | | (c) | STRANDE | | Single | | |
| | | | (D) | TOPOLOG | | - | | |
| | | (ii) | | : cDNA to g | | | | |
| | | (ii) | | (if peptid | | | | |
| | | • • | (A) | | | | D: Overla | an |
| 10 | | | (B) | | T TYPE: | | 1 Fragmen | |
| | | | (c) | HYPOTHE | | | | _ |
| | | (iii | | INAL SOURCE | - | | | |
| | | | (E) | INDIVID | UAL ISOL | ATE: | | |
| | | (iv) | IMME | DIATE SOURC | | | - | |
| 15 | | | (C) | CLONE: | | | | |
| | | (v) | POSI | TION IN GEN | OME: With | hin Env | Gene | |
| | | (vi) | PROP | ERTIES OF S | EQUENCE: | Expres | ses consei | ved antigenic |
| | | | | rminant | | _ | | Ū |
| | | (vii | i) SEQU | ENCE DESCRI | PTION: | | | |
| 20 | | | | | | | | |
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| | SEQ I | D NO: | EE374-3 | | | | | |
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| 25 | 1 | | 5 | | 10 | | | 1. |
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| | TOT A | TA ACA | rro Asn A | sn Asn Thr AC AAT ACA | Arg Lys | Ser lie | His lie G | ily |
| | IGIA | IN NUN | CCC AAC A | MC MAI MCM | AGA AAA | AGI AIA | CAI AIA | GA · |
| | | | | | | | | |
| 30 | | | 20 | | 25 | | | 30 |
| | Pro G | lv Arg | | yr Thr Thr | | Tie Tie | Gly Acn I | |
| | CCA G | GG AGA | GCA TTT 1 | AT ACA ACA | GGA ACA | ATA ATA | GGA GAT A | TΔ |
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| 35 | | · | 35 | | | | | |
| | Arg G | ln Ala I | His Cys | | | | | |
| | AGA CA | AA GCA (| CAT TGT | | | | | |
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| 40 | (2) | INFO | RMATION F | OR SEQ ID 1 | NO: EE378 | -1 | | |
| | | (i) | SEQUE | NCE CHARACT | TERISTICS | : | • | |
| | | | (A) | LENGTH: | 105 | | | |
| | | | (B) | TYPE: N | Nucleic A | cid | | |
| 1 5 | | | (c) | STRANDEI | ONESS: S | ingle | | |
| 4 5 | | | (D) | TOPOLOGY | | | | |
| | | (ii) | KIND: | cDNA to ge | enomic RN | Α | | = |

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| 5 | | (ii) (iii) (iv) (v) (vi) (viii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: |
|----|-----------------------|---------------------------------|--|
| 15 | SEQ ID | NO: EE3 | 78–1 |
| 20 | 1 Cys Th TGT AC | r Arg Pro A AGA CCC | 5 10 15 Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 25 | Pro G1: | y Arg Ala G AGA GCA | 20 25 30 Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| 30 | - | n Ala His A GCA CAT | |
| 35 | (2) | INFORMAT | TION FOR SEQ ID NO: EE378-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| 45 | | (iii) (iv) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: |
| 50 | | (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: |

SEQ ID NO: EE378-2

| 5 | 1 Cys Thi TGT ACA | r Arg Pro A AGA CCC | 5 Asn Asn Asn AAC AAC AAT | Thr Arg Ly | O s Ser Ile Hi A AGT ATA CA | 15 s Ile Gly r ATA GGA |
|------------|-------------------------|------------------------|---|--|--------------------------------------|------------------------------|
| 10 | Pro G13 CCA GGG | / Arg Ala G AGA GCA | 20 Phe Tyr Thr TTT TAT ACA | Thr Gly Gl | 5 u Ile Ile Gly A ATA ATA GGA | 30 7 Asp Ile A GAT ATA |
| 15 | | Ala His GCA CAT | | | | |
| 20 | (2) | INFORMAT | (B) TYP | | CS: Acid | |
| 25 | | | (D) TOP(KIND: cDNAKIND (if per (A) SEQUENT) (B) FRACE | OLOGY: Line to genomic I ptide or pro UENCE ASSEMI GMENT TYPE: | ear RNA otein): BLY METHOD: | |
| 30 , | | (iv) | ORIGINAL SO | IVIDUAL ISOI OURCE: | ATE: | |
| 35 | | (v) (vi) | POSITION IN | GENOME: With SEQUENCE: | hin Env Gene Expresses | - conserved antigenic |
| 40 | SEQ ID 1 | NO: EE37 | 8-3 | | | |
| 4 5 | 1 Cys Thr TGT ACA | Arg Pro A | 5 Asn Asn Asn AAC AAC AAT | Thr Arg Lys ACA AGA AAA | Ser Ile Pro AGT ATA CCT | 15 Ile Gly ATA GGA |

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| | | | | | 20 | I | | | | 25 | , | | | | 30 | |
|----|----------|-------|-------------|-------|------------|-------|---------|-------|--------------|------|--------|-------|------|-------|-------|-------------|
| | Pro | G13 | Arg | g Ala | Phe | Tyr | Thr | Thr | Gly | Glu | ·I1e | : Ile | G1y | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
| 5 | | | | | | | | | | | | | | | | |
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| | A | - 01- | | | 35 | | | | | | | | | | | |
| | | | | | Cys TGT | | | | | | | | | | | |
| | AGA | CAL | GUA | CAI | 161 | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| | (2) | i | INF | ORMA | TION | FOR | SEO | TD | NO: | EE38 | 0-1 | | | | | |
| | | | (i) | | | | | | TERI | | | | | | | |
| | | | | | (A) | | | GTH: | | | • | | | | | |
| 15 | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | | | | | |
| | | | | | (C) | | STR | ANDE | DNES | s: | Sing | 1e | | | | |
| | | | | | (D) | | TOP | OLOG | Y: | Line | ar | | | | | |
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| | | | (ii | .) | | D (i | | | e or | | | | | | | |
| 20 | | | | | (A) | | | | | | | | | Over: | | |
| | | | | | (B) | | | | T TY | | lnt | erna | l Fr | agmei | nt | |
| | | | (ii | ;) | (C) | CTNA | | | TICA : HI | | · · · | | | | | |
| | | | (11 | 1, | (E) | GIMA | | | UAL | | Δ TE • | | | | | |
| 25 | | | (iv |) | | EDIA: | | | | 1001 | ni. | | | | | |
| 25 | | | • | | (C) | | CLO | | _ ` | | | | | | | |
| | | | (v) | | POS | ITIO! | N IN | GEN | OME: | Wit | hin | Env (| Gene | - | | |
| | | | (vi |) | PRO | PERT | IES (| OF S | EQUE | NCE: | Ex | pres | ses | conse | erved | antigenic |
| | | | | | det | ermin | ant | | | | | _ | | | | 0 |
| 30 | | | (vi | ii) | SEQ | JENCI | E DE | SCRI | PTIO | N: | | | | | | |
| | | | | | | | | | | | | | | | | |
| | SEO | ו מד | м О• | EE3 | RO_1 | | | | | | | | | | | |
| | 224 | | | | 00-1 | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | | |
| 30 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | I1e | G1v | |
| | TGT | ACA | AGA | CCC | AGC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | |
| | Desc | C1 | A | A 1 - | 20 | m | | PT-15 | ٥. | 25 | | | | | 30 | |
| | CCA | GEG | ACA | WIR | rne | TAT | Inr | Inr | GLY | Glu | lle | Ile | Gly | Asp | Ile | |
| | COA | 333 | AUA | GCA | 111 | IMI | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
| 45 | | | | | | | | | | | | | | | | |
| 45 | | | | | 35 | | | | | | | | | | | |
| | Arg | G1n | Ala | His | | | | | | | | | | | | |
| | | | | CAT | | | | | | | | | | | | |
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| | (2) | | INF | | | UENC | E CH | IARAC | NO: TERI 10 Nucl | STIC | s: | | | | | | |
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| 5 | | | | | (D) | | STR | | DNES | | Sing | | | | | | |
| | | | (ii (ii | - | KIN | D (i | f pe | ptid | enom | pro | tein |): | | | | | |
| 10 | | | | | (A) (B) (C) | | FRA | GMEN | E AS T TY | PE: | | | | | | | |
| | | | (ii | i) | | | L SO | URCE | : HI | V | ATE: | | ··· | | *** | | |
| 15 | | | (iv | | | EDIA | | OURC | | | | | | | | | |
| | | | (v) | | | | | | OME: | | | | | | _ | | |
| | | | (vi | , | det | PERI ermi | IES nant | OF S | EQUE | NCE: | EX | pres | ses | cons | erved | antigenio | 2 |
| 20 | | | (vi | ii) | | | | | PTIO | N: | | | | | | | |
| | SEQ | ID N | 10: | EE3 | 80–2 | | | | | | | | | | | | |
| 25 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Сув | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | Ile | G1 y | | |
| | TGT A | ACA | AGA | CCC | AGC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | | |
| 30 | | | | | 20 | | | | | 95 | | | | | 20 | | |
| | Pro (| G1y | Arg | Ala | _ | Tyr | Thr | Thr | G1v | 25 Glu | Ile | Ile | G1 v | Asp | 30 Ile | | |
| | CCA (| GGG | AGÃ | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| 35 | | | | | 35 | | | | | | | | | | | | |
| | Arg C | 3ln . | Ala | His | | | | | | | | | | | | | |
| | AGA C | CAA | GCA | CAT | TGT | | | | | | | | | | | | |
| 40 | (2) | | INFO | RMAT | אחזי | FOR | SFO | TD N | 10: E | F307 | 7_1 | | | | | | |
| | (-) | | (i) | | SEQU | | | | ERIS | | | | | | | | |
| | | | | | (A) | | LENC | TH: | 105 | ; | | | | | | | |
| | | | | | (B) (C) | | TYPE | | lucle NESS | | cid Singl | | | | | | |
| 45 | | | | | (D) | | | LOGY | | inea | _ | | | | | | |
| | | | (ii) | | KIND | : cD | NA t | o ge | nomi | c RN | A | | | | | | |

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| | | | (ii | 1) | (A) | ' | SEQ | UENC | E AS | pro SEMB | LY | 1ETHC | D: | Over | lap | | |
|------------|-----|------|------|-------|-------------|--------------|------|------|----------|--------------|------------|-------------|---------------|-------|-------------|---------|------|
| _ | | | | | (B) (C) | | FRA | GMEN | TICA | PE: | Int | erna | ıl Fr | agme | nt | | - |
| 5 | | | (ii | .i) | | GINA | L SO | URCE | | | ATE: | | . | | | | |
| | | | (iv |) | | EDIA | | OURC | | | | | | | | | |
| 10 | | | (v) | | | | | | | | | Env | | | | | |
| | | | (vi | .) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antig | enic |
| | | | (vi | ii) | | ermi UENC | | | PTIO | N: | | | | | | | |
| 15 | SEQ | ID : | NO: | EE3 | 97–1 | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | | | | | | | | |
| | _ | The | Ara | Pro | _ | Acn | A an | Th- | ۸ | 10 | C | 71_ | ** * | Ile | 15 | • | |
| 20 | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | ACA | ACA | ACT | TIE | MIS | ATA | GLY | | |
| | | | | 000 | | 1110 | | non | non | nun | AGI | , VIV | CAC | MIM | GGA | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | | |
| 25 | Pro | G1y | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | G1u | Ile | Ile | G1v | Asn | Ile | | |
| 0 | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAA | ATA | ATA | GGA | AAT | ATA | | |
| | | | | | 35 | | | | | | | | | | | | |
| 00 | Arg | G1n | Ala | Tyr | | | | | | | | | | | | | |
| 30 | | | | TAT | | | | | | | | | | | | | |
| | (2) | | INF | ORMA: | MOIT | FOR | SEO | ID N | 10 : F | ERQC |)_1 | | | | | | |
| 35 | | | (i) | | SEQU | ENCE | CHA | RACI | CERIS | TICS | ; - ; : | | | | | | |
| 30 | | | | | (A) | | LENG | | 105 | | | | | | | | |
| | | | | | (B) | | TYPE | | | ic A | cid | | | | | | |
| | | | | | (C) | | | | NESS | | ing | le | | | • | | |
| | | | (ii) | | (D) | | | LOGY | | inea | | | | | | | |
| 40 | | | (ii) | | KIND |); CL | NA I | o ge | nomi | c KN prot | A | ١. | | | | | |
| | | | (, | | (A) | (| SEOU | ENCE | ASS | EMRI. | V MI |); FTHAT | | Verl | | | |
| | | | | | | | FRAG | MENI | TYP | E: | Inte | ernal | Fra | igmen | t. | | |
| | | | | | (C) | | HYPO | THEI | 'ICAL | : _ | | | | -B | • | | |
| 4 5 | | | (iii | .) | ORIG | | | | | | | | | | | | |
| | | | (4) | | (E) | D T A = | INDI | VIDU | AL I | SOLA | TE: | | | | | | |
| | | | (iv) | , . | IMME (C) | | | | : | | | | | | | | |
| | | | (v) | | | | CLON | | MF. | With | <u> </u> | Env G | | - | | | |
| | | | (vi) | | PROP | ERTI | ES O | F SE | OUEN | GE. Migu | TII E | env G | ene | | | antige | |
| 50 | | | , | | dete | rmin | ant | - 01 | ~ C 1314 | on. | ux] | \r & 2 2 | CB C | onse | rved | antige: | nic |
| | | | (vii | | SEQU | | | CRIP | TION | : | | | | | | | |

SEQ ID NO: EE399-1

| 5 | 1 Cys The TGT ACA | r Arg Pro A AGA CCC | 5 10 15 O Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly C AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA |
|----|-------------------------|------------------------|---|
| 10 | Pro Gly CCA GGC | , Arg Ala G AGA GCA | 20 25 30 A Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile A TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| 15 | | Ala His GCA CAT | |
| 20 | (2) | INFORMA | ATION FOR SEQ ID NO: EE399-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 25 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 30 | | (iii) (iv) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: |
| 35 | | (v) (vi) (viii) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: |
| 40 | SEQ ID | NO: EE39 | 99–2 |
| 45 | 1 Cys Thr TGT ACA | Arg Pro AGA CCC | 5 10 15 Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly AAC AAC AAT ACA AGA AAA GGT ATA CAT ATA GGA |

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| | | | | Ala | | | | | | | | | | | | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
| 5 | | | | | | | | | | | | | | | | | |
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| | Arg | G1n | Ala | His | | | | | | | | | | | | | |
| | _ | | | CAT | - | | | | | | | | | | | | |
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| | | | (1) | | (A) | | | GTH: | TERI 10 | | 3: | | | | | | |
| | | | | | (B) | | TYP | | Nucl | | Acid | | | | | | |
| 15 | | | | | (c) | | | | DNES | | | le | | | | | |
| | | | | | (D) | | | | Y: : | | | | | | | | |
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| | | | (ii |) | (A) | D (i: | | | e or | | | | | ^ | | | |
| 20 | | | | | (B) | | - | | r TY | | | ETHO | | Over: agmen | • | | |
| | | | | | (c) | | | | TICA: | | 1110 | 51 MG. | | agmer | | | |
| | | | (ii: | i) | | GINA | | | : HI | | | | | | | | |
| | | | | _ | (E) | | | | JAL : | ISOL | ATE: | | | | | | - |
| 25 | | | (iv |) | | EDIA: | | | €: | | | | | | | | |
| | | | (v) | | (C) | TTTA | CLO | | ME. | 1.1.4.4.1 | - 3 - 1 | F (| | _ | | | |
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| | | | | , | | ermiı | | J. J. | - Q | .02. | | P1 05. | , | COMB | | antı | .genrc |
| 30 | | | (vi: | ii) | SEQ | JENCI | E DE | SCRI | PTIO | ٧: | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | |
| | CEO | TD B | ٠. | EE39 | 20.2 | | | | | | | | | | | | |
| | DEQ | 11/1 | 10. | EEJ: | ,,-, | | | | | | | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Ser | Ile | His | Ile | G1y | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AGA | AGT | ATA | CAT | ATA | GGA | | |
| | | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | 25 | | | | | 30 | | |
| | Pro | G1y | Arg | Ala | Phe | Tyr | Thr | Thr | G1y | | Ile | Ile | G1y | Asn | | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | AAT | ATA | | |
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| | Aro | G1n | Ala | His | 35 Cvs | | | | | | | | | | | | |
| | _ | | | CAT | - | | | | | | | | | | | | |
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| 5 | (2) | INFORMA (i) (ii) (ii) | TION FOR SEQ ID NO: EE405-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): |
|----|----------|-----------------------|---|
| 10 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | (iv) | (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: |
| 15 | | (= ·) | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic |
| 20 | | (viii) | determinant SEQUENCE DESCRIPTION: |
| | SEQ ID | NO: EE4 | 05–1 |
| 25 | 1 | | 5 10 15 |
| | _ | Arg Pro | Asn Asn Asn Thr Arg Lys Arg Ile Thr Thr Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AAA AGA ATA ACT ACG GGA |
| | | | |
| 30 | | | 20 25 30 |
| | | | Tyr Tyr Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCG GGG | AGA GTA | TAT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| 35 | | | |
| | Ama Tura | Ala His | 35 Cua |
| | | GCA CAT | |
| | | | |
| 40 | (2) | TNEODMA | TION FOR SEC ID NO. FELOS 2 |
| | (2) | (i) | TION FOR SEQ ID NO: EE405-2 SEQUENCE CHARACTERISTICS: |
| | | • | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 45 | | | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
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| | | | (ii |) | (A) (B) | | SEQ | UENC | e or E AS | SEMB | LY M | ETHO | | Over agme | | | · |
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| 5 | | | | | (C) | | | | TICA | | | | | | | | |
| | | | (ii: | 1) | (E) | | | | : HI UAL | | ATE • | | | | | | |
| | | | (iv) | | IMM (C) | EDIA | TE S | OURC NE: | E: | | | | | | | | |
| 10 | | | (v) (vi) | | PRO. | | IES | | OME: EQUE | | | | | | erved | antig | enic |
| | | | (vii | i) | | | | SCRI | PT10 | N: | | | | | | | |
| 15 | SEQ | ID 1 | NO: | EE4 | 05–2 | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | _ | Thr | Arg | Pro | | Asn | Aen | Thr | Ara | | Ara | T1a | Th∽ | Th = | 15 C1** | | |
| 20 | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGA | ATA | ACT | ACG | GGA | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | | |
| 25 | Pro CCG | G1y GGG | Arg AGA | Val GTA | Tyr TAT | Tyr TAT | Thr ACA | Thr ACA | Gly GGA | Glu GAA | Ile ATA | Ile ATA | Gly GGA | Asp GAT | Ile ATA | | |
| 30 | Arg A | Lys | Ala | His | 35 Cys | | | | | | | | | | | | |
| 35 | (2) | | INFO | RMA: | TION SEQU (A) (B) | ENCE | LENC | ARACT | NO: E TERIS 105 Nucle | STICS | S: | | | | | | |
| ‡ 0 | | | (ii) (ii) | | (C) (D) KIND | | STRA TOPO NA t | NDEI LOGY | ONESS : I | inea c RN | Singl Ar IA | | | - | | | |
| | | | | | (A) (B) (C) | | SEQU FRAC | ENCE MENT | e or E ASS TYP TICAL | EMBI | Y ME | THOE | | verl | | | |
| 15 | | | (iii | | ORIG | | INDI | VIDU | AL I | | TE: | | | | | | |
| | | | (iv) | | (C) | | E SO | E: | | | | | | _ | | | |
| | | | (v) | | POSI | TION | IN | GENC | ME: | With | in E | nv G | ene | | | | |
| io | | | (vi) | | PROP dete | ERTI | ES 0 | F SE | QUEN | CE: | Ехр | ress | es c | onse | rved | antige | nic |
| | | | (vii: | i) | | | | CRIP | TION | : | | | | | | | |

SEQ ID NO: EE405-3

| 5 | | | | | | e Thr Thr Gly A ACT ACG GG | y |
|------------|-------------------------|-----------------------|--|------------------------|--|--------------------------------------|-------------|
| 10 | | | | | | 30 e Glu Asp Vai A GAA GAT GTA | |
| 15 | | Ala His GCA CAT | | | | | |
| 20 | (2) | INFORMA' | • • | | TICS: | | |
| 25 | | (ii) (ii) | (D) TOP KIND: cDNA KIND (if pe (A) SEC | ptide or QUENCE ASS | inear c RNA protein): EMBLY METH(| DD: Overlap | |
| 30 | | (iii) (iv) | (C) HYF ORIGINAL SO (E) INI IMMEDIATE S | OIVIDUAL I | · | al Fragment | |
| 35 | | (v) (vi) (viii) | POSITION IN | OF SEQUEN | CE: Expres | Gene sses conserve | d antigenic |
| 40 | SEQ ID 1 | NO: EE50 | 05–1 | | | | |
| 4 5 | 1 Cys Thr TGT ACA | Arg Pro AGG CCC | 5 Asn Asn Asn AAC AAC AAT | Thr Arg | 10 Arg Ser Ile AGA AGT ATA | 15 Asn Ile Gly AAT ATA GGA | |

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| | | | | Ala | | | | | | | | | | | | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAT | ATA | ACA | GGA | GAT | ATA | | |
| 5 | | | | | | | | | | | | | | | | | |
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| | Arg | G1n | Ala | His | | | | | | | | | | | | | |
| | _ | | | CAT | - | | | | | | | | | | | | |
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| . • | (0) | | *** | 00344 | T 011 | T 05 | 050 | TD : | N70 - | | - ^ | | | | | | |
| | (2) | | (i) | ORMA | | | | | | EE3U: STIC: | | | | | | | |
| | | | (1) | | (A) | ошто. | | GTH: | 10 | | • | | | | | | |
| 15 | | | | | (B) | | TYP | | Nuc1 | eic A | Acid | | | | | | |
| 15 | | | | | (C) | | | ANDE | | S: S | Sing | le | | | | | |
| | | | | ` | (D) | | | OLOG: | | Line | | | | | | | |
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| | | | (11 | , | (A) | U (I. | | | | SEMB | | |): (| Overl | ap | | |
| 20 | | | | | (B) | | | | | PE: | | erna: | | | | | |
| | | | | _ | (C) | | | OTHE: | | - | | | | | | | |
| | | | (ii | i) | | GINA | | URCE | | | 4 mm - | | | | | | |
| | | | (iv | ` | (E) | FDTA' | | OURC | | ISOL | ATE: | | | | | | |
| 25 | | | (14 | , | (C) | DIA. | CLO | | ٠. | | | | | | | | |
| | | | (v) | | POS | | | | | Witl | | | | _ | | | |
| | | | (vi |) | | | | OF SI | EQUE | NCE: | Ex | pres | ses o | conse | erved | l antigeni | .c |
| | | | (| | | ermin | | COD T | D T T C 1 | NT - | | | | | | | |
| 30 | | | (VI | ii) | SEQ | JEN/CI | ישע ב | SCRI | 110 | N : | | | | | | | |
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| | SEQ | ID I | NO: | EE50 | 05-2 | | | | | | | | | | | | |
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| | _ | Thr | Arg | Pro | _ | Asn | Asn | Thr | Arg | | Ser | Tle | Asn | Tle | | | |
| | TGT | ACA | AGG | CCC | AAC | AAC | AAT | ACA | AGA | AGA | AGT | ATA | AAT | ATA | GGA | | |
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| 40 | | | | | | | | | | | | | | | | | |
| | Pro | C1 v | A = 0 | A1. | 20 Pho | T | 41. | Th | C1 | 25 | т1_ | TT16 | C1 | 4 · | 30 | | |
| | CCA | GGG | AGA | Ala GCA | TTT | TAT | GCA | ACA | GCA | GAT | ATA | ACA | CCA | CAT | TIE | | |
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| | (2) |) | INE | ORMA | ATION | FOF | SEC | ID (| NO: | EE5 |)5 – 3 | | | | | |
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| | | | (i) |) | SEQ | UENC | E CE | LARAC | TERI | STI | cs: | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | |
| - | | | | | (B) | | TYF | E: | Nuc1 | eic | Acid | t | | | | |
| 5 | | | | | (C) | | STR | ANDE | DNES | s: | Sing | le. | | | | |
| | | | | | (D) | | TOP | OLOG | Y: | Line | ar | | | | | |
| | | | (ii | .) | KIN | D: c | DNA | to g | enom | ic F | AŃ | | | | | |
| | | | (ii | .) | KIN | D (i | f pe | ptid | e or | pro | tein | ·): | | | | |
| 40 | | | | | (A) | | SEQ | UENC | E AS | SEMI | BLY M | ETHO | D: | Over | lap | |
| 10 | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | nt | |
| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | |
| | | | (ii | i) | ORI | GINA | L SO | URCE | : HI | V | | | | | | |
| | | | | | (E) | | IND | IVID | UAL | ISOI | ATE: | | | | | |
| | | | (iv |) | IMMI | EDIA | TE S | OURC | E: | | | | | | | |
| 15 | | | | | (C) | | CLO | | | | | | | _ | | |
| | | | (v) | | | | | | OME: | | | | | | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | VCE: | Ex | pres | ses | cons | erved | antigenic |
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| 20 | | | (vi | ii) | SEQU | JENC | E DE | SCRI | PTIO | 1: | | | | | | |
| 20 | | | | | | | | | | | | | | | | |
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| | SEQ | ID | NO: | EE5 | 05–3 | | | | | | | | | | | |
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| | TOT | IRE | Arg | Pro | Asn | Asn | AST | Inr | Arg | Arg | Ser | 116 | Asn | Tie | Gly | |
| | 161 | AUA | AGG | CCC | AAC | AAC | AAI | ACA | AGA | AGA | AGT | AIA | AAT | ATA | GGA | |
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| | Pro | G1 v | Ara | ۸1 م | Phe | Tre | A 1 a | Th- | C1 ** | | | Th. | C1 | ۸ | 30 | |
| | CCA | CCC | ACA | CCA | TTT | TAT | CCA | 1111 | CCA | CAT | ATA | 1111 | CCA | CAT | 116 | |
| | COA | 333 | non | GUA | 111 | TAT | GUA | AUA | GGA | GAI | VIV | ACA | GGA | GMI | WIW | |
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| 40 | (2) | | INFO |)RMA | CION | FOR | SEO | ID N | 10: E | E50 | 7-1 | | | | | |
| | | | (i) | | | | | | TERIS | | | | | • | | |
| | | | | | (A) | | LENG | | 105 | | - | | | | | |
| | | | | | (B) | | | | lucle | | Acid | | | | | |
| | | | | | (c) | | | | NESS | | Singl | le | | | | |
| 45 | | | | | (D) | | | LOGI | | ine | _ | - | | | | |
| | | | (ii) |) | KIND | : ct | | | enomi | | | | | | | |

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| | | | (ii | .) | KIN (A) (B) (C) | | SEQ FRA | UENC GMEN | | SEMB PE: | LY M | ETHO | | Over agme | | | |
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| 5 | | | (ii | i) | | GINA | L SO | URCE | : HI UAL | V | ATE: | | | | | | |
| | | | (iv | | IMM (C) | EDIA | TE S CLO | OURC | E: | | | | | | | | |
| 10 | | | (v) | | | | | | OME: | | | | | | | | |
| ,, | | | (vi |) | PRO det | PERT ermi | IES nant | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigeni | c |
| | | | (vi | íí) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
| 15 | SEQ | ID : | NO: | EE5 | 07–1 | | | | | | | | | | | | |
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| | Cys | Thr | Arg | Pro | | Asn | Asn | Thr | Arg | | Ser | Ile | Asn | Ile | | | |
| 20 | TGT | ACA | AGĀ | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | AAT | ATA | GGA | | |
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| 25 | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | | |
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| | Arg | G1n | Ala | His | | | | | | | | | | | | | |
| 30 | | | GCA | | | | | | | | | | | | | | |
| | (2) | | INFO | RMA' | rion | FOR | SEO | ID N | 10: E | EE509 | 91 | | | | | | |
| | | | (i) | | | | | | CERIS | | | | | | | | |
| 35 | | | | | (A) | | LENC | TH: | 105 | • | | | | | | | |
| | | | | | (B) | | | | luc1e | | cid | | | | | | |
| | | | | | (C) | | | | NESS | | Singl | Le | | | | | |
| | | | (ii) | ١ | (D) | | | | : I | | | | | | | | |
| 40 | | | (ii) | | | | | | nomi | | | ١. | | | | | |
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| 4 5 | | | (iii | .) | | INAL | SOU | RCE: | HIV | , | | | | | | | |
| ,, | | | | | (E) | | | | JAL I | SOLA | TE: | | | | | | |
| | | | (iv) | 1 | | DIAT | | | : | | | | | | | | |
| | | | (v) | | (C) | | CLON | | ME - | T.7.2 4. 1 | | | <u> </u> | - | | | |
| | | | (vi) | | PROP | ERTI | ES O | OEMU OEMU | ME: | WITH CF. | in E | nv G | ene | | | antigeni | _ |
| 50 | | | , | | dete | rmin | ant | | , чоти | JD. | | , T C 9 8 | ca C | .use | TAGO | antigeni | C |
| | | | (vii | i) | | | | CRIP | TION | : | | | | | | | |

SEQ ID NO: EE509-1

5 10 Cys Thr Arg Pro Asn Asn Thr Arg Lys Gly Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGG AAA GGT ATA CAT ATA GGA 20 25 30 10 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile CCG GGG AGA GCA TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA 35 15 Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE509-2 20 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear 25 (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: 30 (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene 35 (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: (viii) 40 SEQ ID NO: EE509-2 5 10 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Gly Ile His Ile Gly 45 TGT ACA AGA CCC AAC AAC AAT ACA AGG AAA GGT ATA CAT ATA GGA

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| | CCG | GGG | AGA | GCA | TTI | CAT | GCA | ACA | A GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
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| | (2) | | TATE | ODMA | T () | | | | | | | | | | | |
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| | | | (i) | | (A) | | | | | STIC | 5: | | | | | |
| | | | | | (B) | | TYP | GTH: | | | | | | | | |
| 15 | | | | | (C) | | | | | | Acid | | | | | |
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| | | | (iii | i) | | | | | : HI | | | | | | | |
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| 25 | | | (iv) |) | IMM | EDIA | TE S | | | | | | | | | |
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| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin 1 | Env (| Gene | _ | | |
| | | | (vi) |) | PRO | PERT | IES (| OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | antigenic |
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| | 1 Cve | Th∽ | A-~ | Dwa | 5 | A | A | 77% | A | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Arg | Gly | Ile | His | Ile | G1 w | |
| | Cys | Thr ACA | Arg AGA | Pro CCC | Ser | Asn AAC | Asn AAT | Thr ACA | Arg AGA | Arg | Gly GGT | Ile ATA | His CAT | Ile ATA | G1 w | |
| | Cys | Thr ACA | Arg AGA | Pro CCC | Ser | Asn AAC | Asn AAT | Thr ACA | Arg AGA | Arg | Gly GGT | Ile ATA | His CAT | Ile ATA | G1 w | |
| 40 | Cys | Thr ACA | Arg AGA | Pro CCC | Ser AGT | Asn AAC | Asn AAT | Thr ACA | Arg AGA | Arg AGA | Gly GGT | Ile ATA | His CAT | Ile ATA | Gly GGT | |
| 40 | Cys TGT | ACA | AGA | CCC | Ser AGT 20 | AAC | AAT | ACA | AGA | Arg AGA | GGT | ATA | CAT | ATA | Gly GGT | |
| 40 | Cys TGT Pro | ACA Gly | AGA Ala | CCC Phe | Ser AGT 20 Tyr | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| 40 | Cys TGT Pro | ACA Gly | AGA | CCC Phe | Ser AGT 20 Tyr | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| | Cys TGT Pro | ACA Gly | AGA Ala | CCC Phe | Ser AGT 20 Tyr | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| 40 45 | Cys TGT Pro | ACA Gly | AGA Ala | CCC Phe | Ser AGT 20 Tyr TAT | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| | Cys TGT Pro CCA | Gly GGA | AGA Ala GCA | Phe TTT | Ser AGT 20 Tyr | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| | Cys TGT Pro CCA | Gly GGA | AGA Ala | Phe TTT | Ser AGT 20 Tyr TAT | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| | Cys TGT Pro CCA | Gly GGA | Ala GCA | Phe TTT | Ser AGT 20 Tyr TAT | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |
| | Cys TGT Pro CCA | Gly GGA | Ala GCA | Phe TTT | Ser AGT 20 Tyr TAT | AAC | AAT | ACA Gly | AGA | Arg AGA 25 Ile | GGT | ATA G1v | CAT | ATA | Gly GGT 30 | |

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| | (2) |) | INI | FORMA | MOITA | FOF | SEC | QI (| NO: | EE51 | l 0-2 | | | | | | |
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| | | | (i) |) | SEQ | UEN | CE CH | LARA(| CTERI | STIC | es: | | | | | | |
| | | | | | (A) |) | LEN | GTH: | : 10 | 2 | | | | | | | |
| 5 | | | | | (B) | | TYF | E: | Nuc1 | eic | Acid | l | | | | | |
| | | | | | (C) | | STR | ANDE | EDNES | S: | Sing | 1e | | | | | |
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| | | | (ii | i) | KIN | D: 0 | DNA | to g | enom | ic R | NA | | | | | | |
| | | | (ii | .) | KIN | D (i | f pe | ptid | le or | pro | tein |): | | | | | |
| 10 | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | Over | lap | | |
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| | | | | | (C) | | HYP | OTHE | TICA | L: | | | | | | | |
| | | | (ii | i) | ORI | GINA | L SO | URCE | : HI | V | | | | | | | |
| | | | | | (E) | | IND | IVID | UAL | ISOL | ATE: | | | | | | |
| 15 | | | (iv | •) | IMM | EDIA | TE S | OURC | E: | | | | | - | | | |
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| 20 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | |
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| | Cys | Thr | Arg | Pro | Ser | Asn | Asn | Thr | Arg | Arg | G1y | Ile | His | Ile | Gly | | |
| | TGT | ACA | AGA | CCC | AGT | AAC | AAT | ACA | AGA | AGA | GGT | ATA | CAT | ATA | GGT | | |
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| | (2) | | (i) |)IU IA | CION | | | | TERIS | | | | | • | | | |
| | | | (1) | | (A) | ENCI | | | | | • | | | | | | |
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| 45 | | | | | (D) | | | | ONESS | | Singl | .е | | | | | |
| | | | (ii) | | |) - T | | LOGY | | ines | | | | | | | |
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| 5 | | | (ii: | i) | (C) ORI (E) | GINA | L SOI | URCE | TICAI : HIV UAL | _ | ATE: | | | , , , , , , , | | | | |
| | | | (iv |) | | EDIA: | | OURC | | | | * | | _ | | | _ | |
| 10 | | | (v) | | | | | | | Witl | | | | | | | | _ |
| | | | (vi | , | | PEKT. ermi: | | JF 51 | FOOF | NCE: | EX | pres | ses (| cons | erved | anti | rgeni | C |
| | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | | | |
| 15 | SEQ | ID 1 | 10: | EE5 | 10–3 | | | | | | | | | | | | | |
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| | CAG | GUA | CAT | 161 | | | | | | | | | | | | | | |
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| | (2) | INFORMA | TION FOR SEQ ID NO: EE520-1 |
|----|----------|-----------|--|
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| 5 | | | (B) TYPE: Nucleic Acid |
| J | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 10 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| | | (iii) | (C) HYPOTHETICAL:ORIGINAL SOURCE: HIV |
| | | (111) | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: |
| 15 | | (2.) | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | | antigenic determinant |
| | | (viii) | |
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| | SEQ ID I | NO: EE52 | .0-1 |
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| | _ | Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
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| | Pro Gly | Arg Ala | Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
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| | Arg Gln | Ala His (| |
| | _ | GCA CAT | |
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| 40 | (2) | INFORMAT | ION FOR SEQ ID NO: EE520-2 |
| | | | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 45 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | | KIND: cDNA to genomic RNA |
| | | (ii) K | (IND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 50 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | , | (C) HYPOTHETICAL: |
| | | | |

| | | | (ii (iv | | (E) | | IND | | : HI UAL E: | | ATE: | - | | | | |
|----|-----|------|---|------|------------|---------|------|-------|-------------------|-------|----------------|------|------|-------|----------------|------------|
| 5 | | | (v) (vi | | | | | GEN | OME: EQUE | | • | pres | ses | cons | erved rmina | |
| | | | (vi | ii) | SEQ | JENC | E DE | SCRI | PTIO | N: | an | rike | nic | ue Le | rmina | ii C |
| 10 | | | | | | | | | | | | | | | | |
| | SEQ | ID 1 | NO: | EE5 | 20–2 | | | | | | | | | | | |
| 15 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| 75 | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | I1e | His | I1e | G1y | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| 20 | Pro | G1y | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | | Ile | Ile | G1y | Asp | | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
| | | | | | 35 | | | | | | | | | | | |
| 25 | Arg | Gln | Ala | His | | | | | | | | | | | | |
| | _ | | GCA | | _ | | | | | | | | | | | |
| 30 | (2) | | INFO | RMA! | NOI | FOR | SEQ | ID 1 | NO: I | EE520 | 0–3 | | | | | |
| 30 | | | (i) | | | ENC | | | TER IS | | S: | | | | | |
| | | | | | (A) (B) | | LEN(| | 105 Nucle | | h i a | | | | | |
| | | | | • | (c) | | | | DNESS | | Singl | le | | | | |
| 35 | | | | | (D) | | TOP | DLOG | : I | Lines | ar | | | | | |
| | | | (ii) (ii) | | | | | | nomi | | | ١. | | | | |
| | | | (11) | , | (A) | (11 | | | | | tein) LY ME | |): (| verl | an | |
| | | | | | (B) | | | | TYF | | | | | gmen | | |
| 40 | | | (iii | ` | (C) | T37 4 T | | | CICAL | - | | _ | | | | |
| | | | (111 | .) | (E) | INAI | | | : HIV JAL I | | TE • | | | | | |
| | | | (iv) | | IMME | DIAT | | URCE | | | | | | | | |
| | | | | | (C) | | CLO | | | | | | | _ | | |
| 45 | | | (v) (vi) | | | | | | ME: EQUEN | | nin E | | | | | |
| | | | \ + | | INOF | TK 1 1 | | AF SE | いくった/ | OE: | | | | | rved | ı t |
| | | | (vii | i) | SEQU | ENCE | DES | CRIE | TION | i: | | | 0 | | | • |
| | | | | | | | | | | | | | | | | |

SEQ ID NO: EE520-3

| 5 | 1 5 10 15 Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
|----|---|
| 10 | 20 25 30 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| 15 | 35 Arg Gln Ala His Cys AGA CAA GCA CAT TGC |
| 20 | (2) INFORMATION FOR SEQ ID NO: EE528-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 25 | (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 30 | (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: |
| 35 | (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant (viii) SEQUENCE DESCRIPTION: |
| 40 | SEQ ID NO: EE528-1 |
| 45 | 1 5 10 15 Cys Thr Arg Pro Asn Asn Asn Thr Arg Arg Gly Ile His Ile Gly TGT ACA AGA CCC AAC AAC AAT ACG AGG AGA GGT ATA CAT ATA GGA |

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| | Pro CCA | G1y GGG | Arg AGA | Ala GCA | 20 Val GTI | Туг | Ala GCA | Thr ACA | Asp GAT | 25 Lys | Ile | Ile ATA | Gly GGA | Asn AAT | 30 Ile ATA |
|-----------------|-----------------|--------------------------|---|-------------------------|---|------------------------------------|--|--|-------------------------------|--|-----------------------|-----------------------------|-------------|------------|---------------------|
| 5 | | | | | | | | | | | | | | | |
| | | | Ala GCA | | | | | | | | | | | | |
| 10 | | 0111 | 0011 | 0111 | 101 | | | | | | | | | | |
| | (2) | | INF | ORMA | SEQ (A) | UENC | E CH | ID : | | STIC | | | | | |
| 15 | | | | | (B) (C) (D) | | | E: : ANDE: OLOG | DNES | | Acid Sing ar | | | | |
| 20 | | | (ii (ii | | KIN KIN (A) (B) | D: c D (i | DNA f pe SEQ | to g ptide UENC: GMEN: | enom e or E AS | ic R pro SEMB | NA tein LY M | | | | |
| | | | (ii: | i) | (C) ORIG | | L SO | OTHE: URCE | : HI | | Δ Τ F • | | | | |
| | | | | | | | TIME | | | | | | | | |
| 25 | | | (iv) | | (C) | | TE S | OURCI NE: | E: | | | | | | |
| 25 | | | (iv) (v) (vi) | | (C) POS | ITIO | TE S CLO N IN | OURC | E: OME: | Wit | hin Ex | pres | ses (| | erved |
| 25 30 | | | (v) |) | (C) POS: PRO | ITIO PERT | TE S CLO N IN IES | OURCI NE: GENO | E: OME: EQUE | With | hin Ex | pres | ses (| | erved rminan |
| | SEQ | ID N | (v) (vi) |) | (C) POS: PROI SEQI | ITIO PERT | TE S CLO N IN IES | OURCI NE: GENO OF SI | E: OME: EQUE | With | hin Ex | pres | ses (| | |
| 30 | SEQ 1 | ID N | (v) (vi) |) li) | (C) POS: PROI SEQI | ITIO PERT | TE S CLO N IN IES | OURCI NE: GENO OF SI | E: OME: EQUE | With NCE: | hin Ex | pres | ses (| | rminan |
| | 1 Cys | Thr | (v) (vi) (vii |) Li) EE52 Pro | (C) POS: PROI SEQU 28-2 | ITIO PERT JENC | TE S CLO N IN IES E DE: | OURCI NE: GENO OF SI | E: OME: EQUE PTION | With NCE: N: | hin Expan | pres tige | ses onic of | iete: | rminan 15 Glv |
| 30 35 | 1 Cys | Thr | (v) (vi) (vii |) Li) EE52 Pro | (C) POS: PROI SEQU 28-2 Asn AAC | ITIO PERT JENC | TE S CLO N IN IES E DE: | OURCI NE: GENO OF SI SCRII | E: OME: EQUE PTION | With NCE: N: 10 Arg AGA | hin Expan | pres tige | ses onic of | iete: | 15 Gly GGA |
| <i>30</i> 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) (vii) Arg AGA | Pro CCC | (C) POS: PROI SEQU 28-2 5 Asn AAC | ITIO PERT JENC Asn AAC | TE SCORE CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLCC CLCC | OURCI NE: GEN(OF SI SCRII Thr ACG | E: DME: EQUER PTION Arg AGG | With NCE: N: 10 Arg AGA | hin Expans | pres tigen Ile ATA | His CAT | Ile ATA | 15 Gly GGA |
| 30 | 1 Cys | Thr ACA | (v) (vi) (vii) (vii) Arg AGA | Pro CCC | (C) POS: PROI SEQU 28-2 5 Asn AAC | ITIO PERT JENC Asn AAC | TE SCORE CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLCC CLCC | OURCI NE: GEN(OF SI SCRII Thr ACG | E: DME: EQUER PTION Arg AGG | With NCE: N: 10 Arg AGA | hin Expans | pres tigen Ile ATA | His CAT | Ile ATA | 15 Gly GGA |
| 30 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) (vii) Arg AGA | Pro CCC | (C) POS: PROD SEQUENTED SEQUENTED SEQUENTE SEQUENTED SEQUENTED SEQUENTED SEQUENTED SEQUENTED SEQUENTED SEQ | ITIO PERT JENC Asn AAC | TE SCORE CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLCC CLCC | OURCI NE: GEN(OF SI SCRII Thr ACG | E: DME: EQUER PTION Arg AGG | With NCE: N: 10 Arg AGA | hin Expans | pres tigen Ile ATA | His CAT | Ile ATA | 15 Gly GGA |
| 35 | 1 Cys TGT | Thr ACA Gly GGG | (vi) (vii) (vii) NO: Arg AGA | Pro CCC | (C) POS: PROD SEQUENTE SEQUENTE SEQUENT | ITIO PERT JENC Asn AAC | TE SCORE CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLOCK CLCC CLCC | OURCI NE: GEN(OF SI SCRII Thr ACG | E: DME: EQUER PTION Arg AGG | With NCE: N: 10 Arg AGA | hin Expans | pres tigen Ile ATA | His CAT | Ile ATA | 15 Gly GGA |

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| | (2) | INFORMATION FOR SEQ ID NO: EE528-3 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 |
|----|-------------------------|--|
| 5 | | (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear |
| 10 | | (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| 15 | | (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: |
| 15 | | (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| 20 | SEQ ID | (viii) SEQUENCE DESCRIPTION: |
| | | |
| 25 | 1 Cys Thr TGT ACA | 5 10 15 Arg Pro Asn Asn Asn Thr Arg Arg Gly Ile His Ile Gly AGA CCC AAC AAC AAT ACG AGG AGA GGT ATA CAT ATA GGA |
| | | 20 25 30 |
| 30 | Pro Gly CCA GGG | Arg Ala Val Tyr Ala Thr Asp Lys Ile Ile Gly Asn Ile AGA GCA GTT TAT GCA ACA GAT AAA ATA ATA GGA AAT ATA |
| 35 | | 35 Ala His Cys GCA CAT TGT |
| | | |
| 40 | (2) | INFORMATION FOR SEQ ID NO: EE529-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 45 | | (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| 50 | | |

| | (iii) (iv) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: | | | | | | | |
|--------------------|--------------------|---|--|--|--|--|--|--|--|
| | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant | | | | | | | |
| | (viii) | SEQUENCE DESCRIPTION: | | | | | | | |
| SEQ ID | NO: EE5 | 29–1 | | | | | | | |
| 1 | | 5 10 15 | | | | | | | |
| Cys Thr | Arg Pro | Ser Asn Asn Thr Arg Arg Ser Ile Pro Ile Gly | | | | | | | |
| TGT ACA | AGA CCC | AGC AAC AAT ACA AGA AGA AGT ATA CCT ATA GGA | | | | | | | |
| | | 20 25 30 | | | | | | | |
| Pro Gly CCA GGG | Arg Ala AGA GCA | Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile TTT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA | | | | | | | |
| | | 35 | | | | | | | |
| | Ala His GCA CAT | | | | | | | | |
| (2) | INFORMA | TION FOR SEQ ID NO: EE529-2 | | | | | | | |
| | (i) | SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | | | | | | | |
| | (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA | | | | | | | |
| | (ii) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: | | | | | | | |
| | (iii) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: | | | | | | | |
| | (iv) | IMMEDIATE SOURCE: (C) CLONE: | | | | | | | |
| | (v) | POSITION IN GENOME: Within Env Gene | | | | | | | |
| | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant | | | | | | | |
| | (viii) | SEQUENCE DESCRIPTION: | | | | | | | |

SEQ ID NO: EE529-2

| | 1 | | | | 5 | | | | | 10 |) | | | | 15 |
|----|----------|-------------|------------|-------|--|-----------|------|-------|---------|------|--------|-------|-------|-------|-----------|
| | Cys | Thr | Arg | , Pro | Asn | Asn | Asn | Thr | Arg | Lys | s Sei | r Ile | Thr | Ile | Gly |
| | TGI | ' ACA | AGA | CCI | CAAC | AAI | CAA | ACA | AGA | AAA | A AG | ATA 1 | ACT | ATA | GGA |
| 5 | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | _ | | | | |
| | n | 01 | | | 20 | | | | | 25 | | | | | 30 |
| | Pro | GIY | Arg | ALS | Phe | Tyr | Ala | Thr | Gly | Asp | Ile | Ile | Gly | Asp | Ile |
| | CCG | GGG | AGA | GCA | TTT | TAT | GUA | ACA | GGA | GAC | ; ATA | ATA | GGA | GAT | ATA |
| 10 | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | |
| | Arg | G1n | Ala | His | Cys | | | | | | | | | | |
| | | | | | TGT | | | | | | | | | | |
| | | | - 000 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA | TION | FOR | SEQ | ID | NO: | EE53 | 3–1 | | | | |
| | | | (i) | | SEQ | UENC | E CH | ARAC | TERI | STIC | s: | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | |
| 20 | | | | | (B) | | | | | | Acid | | | | |
| 20 | | | | | (C) | | | ANDE | | | Sing | 1e | | | |
| | | | | | (D) | | | OLOG | | Line | | | | | |
| | | | (ii | | | D: cl | | | | | | | | | |
| | | | (ii |) | | 0 (1 | | | | | tein | | | _ | |
| 25 | | | | | (A) | | | | | | | ETHO | | verl | |
| | | | | | (B) | | | GMEN' | | | int | erna. | l Fra | agmen | ıt |
| | | | (ii: | : \ | - | GINAI | | OTHE: | | | | | | | |
| | | | (11. | ., | (E) | 3 T 14W 1 | | IVID | | | A TT . | | | | |
| | | | (iv) |) | | EDIAT | | | | IOUL | WIE: | | | | |
| 30 | | | (| , | (C) | JD IM | CLO | | ٠. | | | | | | |
| | | | (v) | | | TION | | | ME: | Wit | hin | Env (| lone | - | |
| | | | (vi) | | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved | | | | | | | | | rved | |
| | | | • | | | | | | - • • - | | | | | | minant |
| | | | (vii | ii) | SEQU | JENCE | DES | CRI | PTIO | ٧: | | 6 | | | |
| 35 | | | | | | | | | | | | | | | |
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| | SEQ | ID N | 10: | EE53 | 33–1 | | | | | | • | | | | |
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| 40 | 1 | | | | 5 | | | | | 10 | | | | | |
| | _ | Th- | ۸ | D=0 | - | A | ۸ | TL | A | 10 | _ | | _ | | 15 |
| | ТСТ | VCV TIII | VCV UTR | CCC | Asn | AAC | ASII | TUL | ACA | Lys | Ser | 116 | Pro | 116 | Gly |
| | 101 | nun | nun | CCC | AAC | AAC | WVI | ACA | AGA | AAA | AGT | ATA | CCT | ATA | GGA |
| | | | | | | | | | | | | | | | |
| 45 | | | | | 20 | | | | | 25 | | | | | 30 |
| | Pro | G1v | Arg | Ala | Phe | Tvr | Thr | Thr | G1 v | | T16 | T1_ | C1 w | A a ~ | JU T1a |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAT | ATA | ATA | GGA | CAT | ATA |
| | - | | | | | | | | | | | | Jun | JAI | |
| | | | | | | | | | | | | | | | |
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|----|-------|--------------|------------|-------|------------|------|--------|--------------|----------------|------|--------|-------|-------|-------|-------|----|
| | Arg | G1n | Ala | His | Cys | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | • | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| | (-) | | | | | | | | | | | | | | | |
| | (2) | | | ORMA | | | | | | | | | | | | |
| | | | (i) | | SEQ (A) | | E CH | AKAC GTH: | | | S: | | | | | |
| | | | | | (B) | | TYP | | 10 Nucl | - | Acid | | | | | |
| 10 | | | | | (c) | | | | DNES | | Sing | | | | | |
| | | | | | (D) | | | OLOG | | Line | _ | | | | | |
| | | | (ii |) | | | DNA | | | ic R | NA | | | | | |
| | | | (ii |) | | | f pe | | | | | | | | | |
| 15 | | | | | (A) | | | | | | | | D: | | | |
| | | | | | (B) | | | | T TY | | Int | erna | 1 Fr | agme | nt | |
| | | | (22 | ٠, | (C) | | | | TICA | | | | _ | - | | |
| | | | (ii | 1) | (E) | GINA | L SO | | : HI | | A TT . | | | | | |
| | | | (iv |) | | EDTA | TE S | | | 1901 | TIE. | | | | | |
| 20 | | | • | | (C) | | CLO | | | | | | | | | |
| | | | (v) | | POS | ITIO | N IN | GEN | OME: | Wit | hin | Env (| Gene | | • | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | | | | | erved | |
| | | | | | | | | | · | | an | tige | nic (| dete: | rmina | nt |
| 25 | | | (VI | ii) | SEQ | UENC | E DE | SCR1. | PTIO | N: | | | | | | |
| | | | | | | | | | | | | | | | | |
| | SEQ | ID I | NO: | EE5 | 33–2 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 30 | _ | | | | _ | | | | | | | | | | | |
| | 1 | 771 1 | A . | _ | 5 | | | _ | | _10 | | | _ | | 15 | |
| | TCT | Inr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | Pro | Ile | Gly | |
| | 161 | AUA | nun | CCC | MAC | AAC | WAI | AUA | AGA | AAA | AGT | ATA | CCT | ATA | GGA | |
| | | | | | | | | | | | | | | | | |
| 35 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1y | Arg | Ala | Phe | Tyr | Thr | Thr | G1y | Asp | Ile | Ile | G1y | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAT | ATA | ATA | GGA | GAT | ATA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | 35 | | | | | | | | | | | |
| | Aro | Gln | A1 a | His | | | | | | | | | | | | |
| | | | | CAT | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | - |
| | (2) | | | ORMA1 | | | | | | | | | | | | |
| | ٠ | | (i) | | - | ENC | E CHA | | | | S: | • | | | | |
| | | | | | (A) (B) | | LENC | | 105 | | | | | | | |
| | | | | | (C) | | TYPE | | Nucle ONESS | | | ١٥ | | | | |
| 50 | | | | | (0) | | O TIVE | لانتاسات | A1000 | | Singl | | | | | |

| 5 | (ii) (ii) (iv) (v) (vi) | KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene |
|----|-------------------------------------|--|
| 15 | (viii | |
| | SEQ ID NO: E | E533-3 |
| 20 | 1 Cys Thr Arg P TGT ACA AGA C | 5 10 15 ro Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly CC AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA |
| 25 | Pro Gly Arg A CCA GGG AGA G | 20 25 30 la Phe Tyr Thr Thr Gly Asp Ile Gly Asp Ile CA TTT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA |
| 30 | Arg Gln Ala H AGA CAA GCA CA | |
| 35 | (2) INFORM (1) | AATION FOR SEQ ID NO: EE535-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 40 | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment |
| 45 | (iii) (iv) | (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: |
| 50 | (v) | (C) CLONE: POSITION IN GENOME: Within Env Gene |

| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | | - | | | erved | |
|------------|-----------------|------------|--------------|------------|-----------------------------------|------------|------------------------|---------------|-----------------------|---------------------------|--------------------|------------|------------|------------|------------------|---|
| | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | an | rige | nıc | aete | rminan | τ |
| 5 | SEQ | ID | NO: | EE5 | 35–1 | | | | | | | | | | | |
| 10 | 1 Cys TGT | Thr ACA | Arg AGA | Pro CCC | 5 Asn AAC | Asn AAC | Asn AAT | Thr ACA | Arg AGA | 10 Lys AAA | Ser | Ile ATA | His CAT | Ile ATA | 15 Gly GGA | |
| 15 | Pro CCA | G1y GGG | Arg AGA | Ala GCA | 20 Phe TTT | Tyr TAT | Ala GCA | Thr ACA | Gly GGA | 25 Glu GAA | Ile ATA | Ile ATA | Gly GGA | Asp GAT | 30 Ile ATA | |
| 20 | _ | | | His CAT | - | | | | | | | | | | | |
| 25 | (2) | | INF(i) | ORMA: | TION SEQU (A) (B) (C) | UENC: | E CHA LENG TYPI | ARAC: | TERI: 10: Nucl | STIC 5 eic <i>i</i> | S: | le | | | | |
| 30 | | | (ii (ii | | KINI (A) (B) |); cl | DNA (F pej SEQU | to ge | enom: e or E AS | pro | NA tein LY M | ETHO: | | Over: | • | |
| 35 | | | (ii: | - | (E) | | L SOI | VIDU DURCE | HIV | _ | ATE: | | | | | |
| 40 | | | (vi) (vi) | | PROF | PERT | N IN IES (E DES | OF SE | EQUE | NCE: | Exp | pres | ses (| | erved minant | : |
| 4 5 | SEQ | ID N | 10: | EE53 | 35–2 | | | | | | | | | | | |
| 50 | 1 Cys TGT | Thr ACA | Arg AGA | Pro CCC | 5 Asn AAC | Asn AAC | Asn TAA | Thr ACA | Arg AGA | 10 Lys AAA | Ser AGT | Ile ATA | His CAT | Ile ATA | 15 Gly GGA | |

142

| | | | 20 25 30 |
|----|----------|------------|--|
| | Pro G1 | y Arg Ala | a Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | | | A TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| | | | |
| 5 | | | |
| | | | 35 |
| | Ara C1. | n 410 Ui | |
| | _ | n Ala His | The state of the s |
| | AGA CA | A GCA CAT | 1 161 |
| 10 | | | |
| 70 | 4 - 5 | | |
| | (2) | INFORMA | ATION FOR SEQ ID NO: EE543-1 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 15 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| | | (11) | |
| 20 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 20 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: |
| 25 | | | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | , , | antigenic determinant |
| | | (viii) | SEQUENCE DESCRIPTION: |
| 30 | | (| bigomica babonii i ion. |
| | | | |
| | SEQ ID | NO. FFS | 43–1 |
| | SEQ ID | NO. EES | 143-1 |
| | | | |
| 35 | | | _ |
| 33 | 1 | _ | 5 10 15 |
| | Cys Thr | Arg Pro | Asn Asn Asn Thr Arg Arg Gly Ile Ser Ile Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AGG GGT ATA AGT ATA GGA |
| | | | |
| | | | |
| 40 | | | 20 25 30 |
| | Pro Glv | Arg Ala | Phe Val Tyr Ala Thr Lys Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | TTT GTT TAT GCA ACA AAA ATA ATA GGA GAT ATA |
| | 0011 000 | 11011 0011 | TIT OIT INT OON NON NAM NIM NEW TAIN IN |
| | | | |
| 45 | | | 25 |
| | | | 35 |
| | | Ala His | - |
| | AGA CAA | GCA CAT | TGT |
| | | | |
| | | | |
| 50 | | | |

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| | (2) | INFORMAT | ION FOR SEQ ID NO: EE543-2 |
|----|---------|-----------|---|
| | • • | | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 5 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | | KIND: cDNA to genomic RNA |
| | | | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 10 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| | | | IMMEDIATE SOURCE: |
| 15 | | | (C) CLONE: |
| | | | |
| | | | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | | antigenic determinant |
| 20 | | (viii) | SEQUENCE DESCRIPTION: |
| | | | |
| | 200 70 | NO - EEC/ | 2 0 |
| | SEQ ID | NO: EE54 | 3-2 |
| | | | |
| 25 | _ | | |
| | 1 | | 5 10 15 |
| | | | Asn Asn Asn Thr Arg Lys Ser Ile Thr Ile Gly |
| | TGT ACA | AGA CCC | AAT AAC AAT ACA AGA AAA AGT ATA ACT ATA GGA |
| | | | |
| 30 | | | |
| 00 | | | 20 25 30 |
| | | | Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| | | | |
| 35 | | | |
| 35 | | | 35 |
| | Arg Gln | Ala His | Cys |
| | AGA CAA | GCA CAT | TGT |
| | | | |
| | | | |
| 40 | (2) | INFORMAT | ION FOR SEQ ID NO: EE543-3 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| 45 | | | (D) TOPOLOGY: Linear |
| | | | KIND: cDNA to genomic RNA |
| | | | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment |
| 50 | | | 72) TIGOTHUI TITDI THEETHUI LIURMEHE |

| | | | (C) HYPOTHETICAL: |
|------------|--------|-----------|---|
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| _ | | (iv) | IMMEDIATE SOURCE: |
| 5 | | | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | | antigenic determinant |
| | | (viii) | |
| 10 | | | |
| | | | |
| | SEQ ID | NO: EE5 | 543–3 |
| | • | | |
| | | | |
| 15 | 1 | | 5 10 15 |
| | Cys Th | r Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile Thr Ile Gly |
| | TGT AC | A AGĂ CCC | C AAT AAC AAT ACA AGA AAA AGT ATA ACT ATA GGA |
| | | | |
| | | | |
| 20 | | | 20 25 30 |
| | Pro G1 | y Arg Ala | Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GG | G AGA GCA | TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| | | | |
| | | | |
| 25 | | | 35 |
| | Arg Gl | n Ala His | Cys |
| | _ | A GCA CAT | |
| | | | |
| | | | |
| 30 | (2) | INFORMA | TION FOR SEQ ID NO: EE558-1 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| 35 | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 40 | | | (B) FRAGMENT TYPE: Internal Fragment |
| 40 | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| | | (iv) | IMMEDIATE SOURCE: |
| 45 | | | (C) CLONE: |
| 45 | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | | antigenic determinant |
| | | (viii) | SEQUENCE DESCRIPTION: |
| E0 | | | |
| 5 <i>0</i> | | | |

| | SEQ ID NO: EE558-1 | |
|------------|---|--|
| 5 | Cys Thr Arg Pro Asn Asn Asn Thr Arg Ly | |
| | TGT ACA AGA CCC AAC AAC AAT ACA AGA AA | AA AGT ATA CAT ATA GGA |
| 10 | 20 2 Pro Gly Arg Ala Phe Tyr Ala Thr Gly Gl CCA GGG AGA GCA TTT TAT GCA ACA GGA GA | |
| 15 | 35 | |
| 15 | Arg Gln Ala His Cys | |
| | AGA CAA GCA CAT TGC | |
| 20 | (2) INFORMATION FOR SEQ ID NO: EE5 (i) SEQUENCE CHARACTERISTI (A) LENGTH: 105 (B) TYPE: Nucleic (C) STRANDEDNESS: (D) TOPOLOGY: Lin | ICS: |
| 25 | (ii) KIND: cDNA to genomic(ii) KIND (if peptide or pr | RNA cotein): MBLY METHOD: Overlap |
| 30 | (iii) ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISO (iv) IMMEDIATE SOURCE: (C) CLONE: | DLATE: |
| 35 | (v) POSITION IN GENOME: Wi | thin Env Gene |
| 35 | (vi) PROPERTIES OF SEQUENCE | E: Expresses conserved antigenic determinant |
| | (viii) SEQUENCE DESCRIPTION: | . |
| 40 | SEQ ID NO: EE558-2 | |
| | | 15 |
| 4 5 | Cys Thr Arg Pro Asn Asn Asn Thr Arg Ly TGT ACA AGA CCC AAC AAC AAT ACA AGA AA | |

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Pro Gly Arg Ala Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile CCA GGG AGA GCA TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA

35

| | | Ala His Cys GCA CAT TGC | |
|----|----------|----------------------------------|---|
| 5 | | | |
| 10 | (2) | | OR SEQ ID NO: EE558-3 NCE CHARACTERISTICS: LENGTH: 105 TYPE: Nucleic Acid STRANDEDNESS: Single TOPOLOGY: Linear |
| 15 | | (ii) KIND: | cDNA to genomic RNA (if peptide or protein): SEQUENCE ASSEMBLY METHOD: Overlap FRAGMENT TYPE: Internal Fragment HYPOTHETICAL: |
| 20 | | (iii) ORIGIN (E) | NAL SOURCE: HIV INDIVIDUAL ISOLATE: LATE SOURCE: |
| | | (v) POSITI (vi) PROPER | CLONE: ION IN GENOME: Within Env Gene RTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| 25 | | (V111) SEQUEN | NCE DESCRIPTION: |
| | SEQ ID N | O: EE558-3 | |
| 30 | | | 10 15 on Asn Thr Arg Lys Ser Ile His Leu Gly AC AAT ACA AGA AAA AGT ATA CAT CTA GGG |
| 35 | | | 25 30 Or Thr Thr Gly Asp Ile Ile Gly Asp Ile AT ACA ACA GGA GAC ATA ATA GGA GAT ATA |
| 40 | | 35 Ala His Cys GCA CAT TGT | |
| 45 | | | OR SEQ ID NO: EE594-1 ICE CHARACTERISTICS: LENGTH: 105 TYPE: Nucleic Acid |
| 50 | | | |

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BNSDOCID: <EP___0471407A2_I_>

| | | | (ii | ` | (C) (D) | | TOP | ANDE OLOG | Y: | Line | | 1e | | | | |
|-----|-----|------|-------|-------|------------|-------|-------|--------------|--------------|-------|-------|------|------|-------|--------|----|
| | | | (ii | | | | | ptid | | | | ١. | | | | |
| 5 | | | \ | • / | | 2 (1 | SEO | UENC | E AS | SEMB | I.Y M | FTHO | D: | 0ver | lan | |
| | | | | | (B) | | | | | | | | | agme | | |
| | | | | | (c) | | | OTHE | | | | | | -6 | | |
| | | | (ii | i) | ORI | GINA | L SO | URCE | : HI | v | | - | | | | |
| 10 | | | | | (E) | | IND | IVID | UAL | ISOL | ATE: | _ | | | | |
| 70 | | | (iv | •) | IMM | EDIA | TE S | OURC | E: | | | | | | | |
| | | | | | (C) | | CLO | | | | | | , | _ | | |
| | | | (v) | | | | | GEN | | | | Env | Gene | ! | | |
| | | | (vi |) | PRO | PERT | IES | OF S | EQUE | NCE: | Ex | pres | ses | cons | erved | |
| 15 | | | | | | | | | | | an | tige | nic | dete | rminar | nt |
| | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | |
| | | | | | | | | | | | | | | | | |
| | CEO | TD 1 | NO. | EE5 | 07. 1 | | | | | | | | | | | |
| | SEQ | ID | NO: | EES | 94-1 | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | | Thr | Arg | Pro | | Asn | Asn | Thr | MET | | Ser | T1e | Hic | Ile | | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | ATG | AAA | AGT | ATA | CAT | ATA | CCA | |
| 0.5 | | | | | | | | | | | | | V | | 0011 | |
| 25 | | | | | | | | | | | | | | | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1 y | Arg | Ala | Phe | Tyr | Thr | Thr | G1y | Gln | I1e | Ile | G1y | Asp | I1e | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | CAA | ATA | ATA | GGA | GAT | ATA | |
| 30 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | |
| | _ | Gln | | | • | | | | | | | | | | | |
| | AGA | CAA | GÇA | CAT | IGI | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | | |
| | (2) | | INFO | ORMA? | TTON | FOR | SEO | TD A | <u>ا</u> ۱۸۰ | 7650/ | 2 | | | | | |
| | \-/ | | (i) | | | | | RACI | | | | | | | | |
| | | | , | | (A) | | LEN | | 105 | | - • | | | | | |
| 40 | | | | | (B) | | TYPE | | lucle | | Acid | | | | | |
| 40 | | | | | (C) | | | NDEI | | | Sing | le | | | | |
| | | | | | (D) | | | LOGY | | Lines | | | | • | | |
| | | | (ii) |) | KINI |): cI | ONA t | o ge | nomi | ic RN | NA. | | | | | |
| | | | (ii) |) | KINI | | per | tide | or | prot | ein) | | | | | |
| 45 | | | | | (A) | | | JENCE | | | | |): (| Over1 | lap | |
| | • | | | | (B) | | FRAC | MENT | TYP | E: | | | | agmer | | |
| | | | | | (C) | | | THET | | | | | | | | |
| | | | (iii | L) | | INAI | | IRCE: | | | | | | | | |
| | | | (2) | | (E) | | | VIDU | | SOLA | TE: | | | | | |
| 50 | | | (iv) | , | IMME | LAIU | E SC | URCE | :: | | | | | | | |

| (C) CLONE: (v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinan |
|--|
| (viii) SEQUENCE DESCRIPTION: |
| SEQ ID NO: EE594-2 |
| |
| 1 5 10 15 |
| Cys Thr Arg Pro Asn Asn Asn Thr MET Lys Ser Ile His Ile Gly |
| TGT ACA AGA CCC AAC AAC AAT ACA ATG AAA AGT ATA CAT ATA GGA |
| |
| |
| 20 25 30 |
| Pro Gly Arg Ala Phe Tyr Thr Thr Gly Gln Ile Ile Gly Asp Ile |
| CCA GGG AGA GCA TTT TAT ACA ACA GGA CAA ATA ATA GGA GAT ATA |
| |
| 35 |
| Arg Gln Ala His Cys |
| AGA CAA GCA CAT TGT |
| |
| (2) INFORMATION FOR SEQ ID NO: EE594-3 |
| (i) SEQUENCE CHARACTERISTICS: |
| (A) LENGTH: 105 |
| (B) TYPE: Nucleic Acid |
| (C) STRANDEDNESS: Single |
| (D) TOPOLOGY: Linear |
| (ii) KIND: cDNA to genomic RNA |
| <pre>(ii) KIND (if peptide or protein):</pre> |
| (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| (B) FRAGMENT TYPE: Internal Fragment |
| (C) HYPOTHETICAL: |
| (iii) ORIGINAL SOURCE: HIV |
| (E) INDIVIDUAL ISOLATE: |
| (iv) IMMEDIATE SOURCE: |
| (C) CLONE: |
| <pre>(v) POSITION IN GENOME: Within Env Gene (vi) PROPERTIES OF SEQUENCE: Expresses conserved</pre> |
| * |
| antigenic determinant (viii) SEQUENCE DESCRIPTION: |
| (1111) DEGOTATION: |

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| | 1 | | | | 5 | | | | | 10 |) | | | | 15 |
|------------|-----------|------|------------|------------|------------|-------|-------|-------|---------------|------------|--------------|-------|--------|-------|------------------|
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | MEI | Lys | Ser | : Ile | His | Ile | Gly |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | ATG | AAA | AGI | ATA | CAI | ATA | GGA |
| 5 | | | | | | | | | | | | | | | |
| | | | | | 00 | | | | | | | | | | |
| | D | C1 | ۸ | 41- | 20 | | m | PITTL | | 25 | | ** | 1 | | 30 |
| | CCA | GLY | VCV WLR | CCV WIS | rne TTT | Tyr | TUL | TUI | CCA | GID | 116 | 116 | GIY | Asp | Ile ATA |
| | COA | 000 | non | GUA | 111 | INI | AUA | ACA | GGA | CAA | MIN | AIA | GGA | GAI | AIA |
| 10 | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | |
| | Arg | Gln | Ala | His | Сув | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | (2) | | | | | | | | NO: | | | | | | |
| | | | (i) | | | UENC. | | | TERI | | S: | | | | |
| | | | | | (A) (B) | | | GTH: | 10 Nucl | _ | A | | | | |
| 20 | | | | | (C) | | TYP | | DNES | | Acia Sing | | | | |
| | | | | | (D) | | | OLOG | | s. Line | _ | Te | | | |
| | | | (ii |) | | | | | enom | | | | | | |
| | | | (ii | | | | | | e or | | |): | | | |
| 25 | | | • | • | (A) | • | | | E AS | | | | D: | 0ver | lap |
| 20 | | | | | (B) | | | | T TY | | | | | agme | |
| | | | | | (C) | | | | TICA | | | | | | · |
| | | | (ii: | i) | | GINA | | | : HI | | | | | | |
| | | | | | (E) | | | | UAL | ISOL | ATE: | | | | |
| 30 | | | (iv) |) | | EDIA: | | | E: | | | | | | |
| | | | (v) | | (C) | TTIO | CLO | | | **** | | | | - | |
| | | | (vi) | _ | | | | | OME: EQUEI | | | | | | |
| | | | (*1, | , | IKO | EKI. | res (| JF 5. | eQuei | VCE: | | | | | erved rminant |
| | | | (vii | ii) | SEOU | JENCI | E DES | SCRI | PTIO | V : | an | rige | iiie (| ae Le | rminant |
| 35 | | | • | • | _ | | | | | • | | | | | |
| | | | | | | | | | | | | | | | |
| | SEQ | ID N | 10: | EE62 | 28-1 | | | | | | | | | | |
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| 40 | • | | | | - | | | | | | | | | | |
| | 1 C*** | ጥե | A | D | 5 | A | | PP11 | | _10 | | | | | 15 |
| | TOT | TUL | ACA | rro | ASD | ASD | Asn | Thr | Arg | Lys | Gly | Ile | His | MET | Gly |
| | 161 | AUA | AGA | CCC | AAC | AAI | AAI | ACA | AGA | AAA | GGT | ATA | CAT | ATG | GGA |
| | | | | | | | | | | | • | | | | |
| 45 | | | | | 20 | | | | | 25 | | | | | 30 |
| | Pro | G1y | Lys | Ala | | Tvr | Ala | Thr | Gly | | م 1 آ | T1 = | G1 w | Δεσ | JU Tle |
| | CCA | GGG | AAA | GCA | TTT | TAT | GCA | ACA | GGG | GAC | ATA | ATA | GGA | AAT | ATA |
| | | | - | | | | | | -50 | | | ***** | JGA | *### | ***** |
| 5 0 | | | | | | | | | | | | | | | |
| ,,, | | | | | | | | | | | | | | | |
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| Arg Gln | 35 Ala His Cys | | |
|--------------------|---|--|---|
| AGA CAA | GCA CAT TGT | | |
| | | • | |
| (2) | (i) SEQUE | ENCE CHARACTERISTICS: LENGTH: 105 | |
| | (C) (D) | STRANDEDNESS: Single TOPOLOGY: Linear | |
| | (ii) KIND | (if peptide or protein): | |
| | (B) (C) | FRAGMENT TYPE: Internal Fragment HYPOTHETICAL: | |
| | | | |
| | | | - |
| | · · | ERTIES OF SEQUENCE: Expresses conserved | |
| | (viii) SEQUE | | |
| SEQ ID 1 | NO: EE628-2 | | |
| 1 | 5 | 10 15 | |
| Cys Thr TGT ACA | Arg Pro Asn A AGA CCC AAC A | sn Asn Thr Arg Lys Gly Ile His MET Gly AC AAT ACA AGA AAA GGT ATA CAT ATG GGA | |
| | 20 | 25 | |
| Pro Gly CCA GGG | Lys Ala Phe T | yr Ala Thr Gly Asp Ile Ile Gly Asn Ile | |
| | 35 | | |
| | Ala His Cys | | |
| (2) | | OR SEQ ID NO: EE628-3 NCE CHARACTERISTICS: | |
| | SEQ ID 1 Cys Thr TGT ACA Pro Gly CCA GGG Arg Gln AGA CAA | Arg Gln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION (i) SEQUI (A) (B) (C) (D) (ii) KIND (ii) KIND (A) (B) (C) (iii) ORIGI (E) (iv) IMMEI (C) (v) POSIT (vi) PROPE (viii) SEQUE SEQ ID NO: EE628-2 1 | Arg Cln Ala His Cys AGA CAA GCA CAT TGT (2) INFORMATION FOR SEQ ID NO: EE628-2 |

| 5 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
|----|--------------------|--------------------|---|
| | | (iii) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| 10 | | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| 15 | | (viii) | SEQUENCE DESCRIPTION: |
| | SEQ ID N | io: EE6 | 28-3 |
| 20 | | | 5 10 15 Asn Asn Asn Thr Arg Lys Gly Ile His MET Gly |
| | TGT ACA | AGA CCC | AAC AAC AAT ACA AGA AAA GGT ATA CAT ATG GGA |
| 25 | Pro Gly CCA GGG | Lys Ala AAA GCA | 20 25 30 Phe Tyr Ala Thr Gly Asp Ile Ile Gly Asn Ile TTT TAT GCA ACA GGG GAC ATA ATA GGA AAT ATA |
| 30 | Arg Gln AGA CAA | | · · |
| 35 | (2) | INFORMAT | TION FOR SEQ ID NO: EE639-1 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 40 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): |
| 45 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| | | (iii) (iv) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: |
| 50 | | \ - ·/ | (C) CLONE: |

| | | (v) (vi |) | | | N IN | | | | Ex | pres | ses | cons | erve | |
|----------|-----|--------------|-------|-------------------|------|-------------------------------|-------------|------------------------------|---------------|---------------------|------------|-------|--------------|--------------|----|
| | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | an | tige | nic | aete | rmina | an |
| SEQ | ID | NO: | EE6 | 39–1 | | | | | | | | | | | |
| , | | | | - | | | | | | | | | | | |
| l Cve | Thr | Ara | Pro | 5 4 sp | Acn | Hic. | Th.∽ | C1 | 10 | A === | T1. | Th- | T | 15 Gly | |
| TGT | ACA | AGA | CCC | AAC | AAC | CAT | ACA | GAA | AAA | CGT | ATA | ACT | CTA | GGA | |
| | | | | 20 | | | | | 25 | | | | | 20 | |
| Pro | Glv | Aro | Va 1 | _ | Tvr | Thr | Thr | C1 v | | Tla | T1_ | C1 vr | 400 | 30 T10 | |
| CCG | GGG | AGA | GTA | CTT | TAT | ACA | ACA | GGA | AGA | ATA | ATA | GGA | GAT | ATA | |
| | | | | 35 | | | | | | | | | | | |
| Arg | Arg | Ala | His | | | | | | | | | | | | |
| _ | _ | | CAT | - | | | | | | | | | | | |
| (2) | | INFO | ORMAT | LION | FOR | SEQ | א מז | io. F | FF630 | 2_2 | | | | | |
| | | (i) | | | | E CHA LENG TYPE STRA | RACT TH: | ERIS 105 Jucle NESS | STICS ic A | S: Acid Singl | .e | | | | |
| | | (ii) (ii) | | KINI | | NA t | o ge | nomi | c RN | IA |) : | | | | |
| | | | | (A) (B) (C) | | SEQU FRAG HYPO | MENI | TYP | E: | | | Fre | ver1 gmen | - | |
| | | (iii | .) | ORIG | INAI | SOU INDI | | HIV AL I | | TE: | | | | | |
| | | (iv) | • | IMME (C) | | E SO | URCE | | | | | | | | |
| | | (v) | | | | IN | | | | | | | | | |
| | | (vi) | | | | ES O | | | | | | | | rved mina | |
| | | (vii | i) | SEQU | ENCE | DES | CRIP | TION | : | | - | | | | |
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| | Суб | Thr | Arg | Pro | Asn | Asn | His | Thr | Glu | Lys | Arg | ; Ile | Thr | Leu | ı Gly | |
| | TGT | ACA | AGA | CCC | AAC | AAC | CAI | ACA | GAA | AAA | CGI | ATA | ACI | CTA | GGA | |
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| | _ | | | | _ 20 | | 0 | | | 25 | | | | | 30 | |
| | Pro | Gly | Arg | Val | Leu | Tyr | Thr | Thr | Gly | Arg | Ile | Ile | G1y | ' Asp | Ile | |
| | CCG | GGG | AGA | GTA | CTT | TAT | ACA | ACA | GGA | AGA | ATA | ATA | GGA | GAI | ATA | |
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| | nun | CGA | GUA | ONI | 161 | | | | | | | | | | | |
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| | | | \-, | | (A) | | | GTH: | 10 | | | | | | | |
| | | | | | (B) | | | | Nuc1 | - | Acid | | | | | |
| 20 | | , | | | (c) | | | | DNES | | Sing | 1e | | | | |
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| | | | (ii) |) | | D: c | | | enom | | | | | | | |
| | | | (ii) |) | KIN |) (i | f pe | ptid | e or | pro | tein |): | | | | |
| | | | | | (A) | | SEQ | UENC. | E AS | SEMB: | LY M | ETHO | D: | 0ver | lap | |
| 25 | | | | | (B) | | | | T TY | | | | 1 Fr | | _ | |
| | | | | | (C) | | HYP | OTHE | TICA | և։ լ | | | | | | |
| | | | (iii | L) | ORIG | GINA | L SO | URCE | : HIV | 1 | | | | | | |
| | | | | | (E) | | IND | IVID | UAL : | ISOL | ATE: | | · · · · · · · · · · · · · · · · · · · | | | |
| 30 | | | (iv) |) | | EDIA | re s | OURC | E: | | | | | | | |
| | | | | | (C) | | CLO | | | | | | | _ | | |
| | | | (v) | | | | | | OME: | | | | | | | |
| | | | (vi) | , | PROF | PERT. | IES (| OF S | EQUEI | VCE: | | | | | erved | |
| | | | (:: | 4.1 | CEOI | ienoi | - 1012 | 300 T | n | • . | an | tige | nic (| dete: | rmina | nt |
| 35 | | | (vii | . 1) | SEQU | ENCI | e DE: | SCKI | PTION | v: | | | | | | |
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| | SEO | ID N | 0: | EE63 | 19-3 | | | | | | | | | | | |
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| 40 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | | Ser | T1e | Pro | Tle | Glw | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGG | AAA | AGT | ATA | CCA | ATA | GGA | |
| | | | | | | | | | | | | | 00 | ••••• | 0011 | |
| AE. | | | | | | | | | | | | | | | | |
| 45 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | G1y | Asp | I1e | Ile | G1y | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
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| | | ln Ala His Cys AA GCA CAT TGT | |
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| 10 | (2) | INFORMATION FOR SEQ ID NO: EE660-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid | |
| 15 | | (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear (ii) KIND: cDNA to genomic RNA (ii) KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment | |
| | | (C) HYPOTHETICAL:(iii) ORIGINAL SOURCE: HIV | |
| 20 | | (E) INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: (v) POSITION IN GENOME: Within Env Gene | |
| | | (vi) PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant | |
| 25 | | (viii) SEQUENCE DESCRIPTION: | |
| | SEQ ID | NO: EE660-1 | |
| 30 | 1 | 5 10 15 | |
| | Cys The | r Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly A AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA | |
| 35 | | 20 25 30 | |
| | Pro Gly CCA GGA | y Arg Ala Phe Tyr Thr Thr Gly Asp Val Ile Gly Asp Ile A AGA GCA TTT TAT ACA ACA GGA GAT GTA ATA GGA GAT ATA | |
| 40 | Arg Glr | 35 n Ala Arg Cys | |
| | AGA CAA | A GCA CGT TGT | |
| 4 5 | (2) | INFORMATION FOR SEQ ID NO: EE660-2 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single | |

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| | | | | | (D) | | TOP | OLOG | Υ: | Line | ar | | | | | |
|----|-----|------|-------------|-------|------|----------|------|--------------|-------|---------|-----------|-------------|----------|--------|---------|--|
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| | | | (11 | , | (A) | | | | | | | | n. | 0ver | 1.00 | |
| 5 | | | | | (B) | | | | | | | | | agme | | |
| | | | | | (C) | | | | | | 111 € | ema | T LL | agme | nt | |
| | | | (22 | i) | | | | OTHE URCE | | | | | | | | |
| | | | (11 | 1) | | | | | | | A 77777 . | | | | | |
| | | | (iv | ` | (E) | | | IVID | | 1201 | AIE: | | | | | |
| 10 | | | (10 | , | (C) | | - | OURC | e: | | | | | | | |
| | | | (v) | | | | CLO | GEN | OME | 1.7.2 6 | h.i. | E | <u> </u> | _ | | |
| | | | (vi | | | | | | | | | | | | | |
| | | | (1) | , | PRU | PEKI | IES | OF S | EQUE | NCE: | | | | | erved | |
| | | | (| 211 | CEO | i i Enio | e ne | CODT | DETA | NT - | an | tige | nic | dete: | rminant | |
| 15 | | | (VI | ii) | SEQ | OFNC | E DE | SCRI | P110 | N: | | | | | | |
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| | SEO | ID : | NO. | FF6 | دn_2 | | | | | | | | | | | |
| | SEQ | ID. | 140: | EEO | 60–2 | | | | | | | | | | | |
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| | | Th. | A = ~ | Dro | | A an | ۸ ۵۵ | Th | ۸ | | C | T1_ | A | Ile | 15 | |
| | ТСТ | ACA | VCV Vr R | CCC | VVC | VVC | AAT | THE | ACA | WIR | Ser | TIE | ASD | ATA | GIY | |
| | 101 | AUA | AUA | CCC | AAC | AAC | WWI | AUA | MGM | MUM | WGI | AIA | AAI | WIW | GGA | |
| | | | | | | | | | | | | | | | | |
| 25 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1 v | Aro | Αla | | Tur | Δ1a | Thr | G1 w | | Tio | T1. | C1 ** | Asp | | |
| | CCA | GGG | AGA | GCA | TTC | TAT | GCA | ACA | CCA | GCC | ATA | ATA | CCA | GAT | ATA | |
| | 00 | 000 | | 0011 | 110 | **** | 0011 | non | GGA | 900 | NIN | UIU | GGA | GAI | VIV | |
| | | | | | | | | | | | | | | | | |
| 30 | | | | | 35 | | | | | | | | | | | |
| | Arg | G1n | Ala | His | | | | | | | | | | | | |
| | | | GCA | | | | | | | | | | | | | |
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| 35 | (2) | | INFO | ORMA' | CION | FOR | SEQ | ID 1 | 10: I | EE661 | l-1 | | | | | |
| | | | (i) | | | | | ARAC: | | | | | | | | |
| | | | | | (A) | | LEN | | 105 | | - | | | | | |
| | | | | | (B) | | TYPI | | | eic A | Acid | | | | | |
| | | | | | (c) | | | NDE | | | Sing | l e | | | | |
| 40 | | | | | (D) | | | DLOG | | Lines | _ | | | | | |
| | | | (ii) |) | |): cI | | to ge | | | | | | • | | |
| | | | (ii) | | KINI | (i) | per | ptide | or | prof | ein' | ١. | | | | |
| | | | ,, | | (A) | ` ` | SEO | JENCE | E ASS | FMRI | Y MI | , . THOI | | Over1 | an | |
| | | | | | (B) | | FRAC | MEN' | TY | E: | Inte | - 11101 | Fr | agmen | .ap | |
| 45 | | | | | (c) | | | THE | | | 1116 | - L 11G. | | v₽mer. | | |
| | | | (iii | () | | INA | | JRCE: | | _ | | | | | | |
| | | | • | • | (E) | | | VIDU | | | TE: | | | | | |
| | | | (iv) |) | | DIAT | | URCE | | | | | | | | |
| | | | , , | | (C) | | CLON | | | | | | | | | |
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| | | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved |
|----|--|--|
| 5 | (viii) | antigenic determinant SEQUENCE DESCRIPTION: |
| | SEQ ID NO: EE66 | 1-1 |
| 10 | 1 Cys Thr Arg Pro | 5 10 15 Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly |
| 15 | TGT ACA AGA CCC | AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 15 | | 20 25 30 Phe Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GGG AGA GCA | TTT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| 20 | Arg Gln Ala His (AGA CAA GCA CAT 1 | • |
| 25 | (i) S | ION FOR SEQ ID NO: EE661-2 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 |
| 30 | (ii) K (ii) K | (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): |
| 35 | (| (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: DRIGINAL SOURCE: HIV |
| 40 | (iv) I | (E) INDIVIDUAL ISOLATE: |
| | | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
| 45 | (viii) S | SEQUENCE DESCRIPTION: |
| | SEQ ID NO: EE661 | .–2 |

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| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | His | I1e | Gly | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CAT | ATA | GGA | |
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| | CCA | GGG | AGA | GCA | 111 | TAT | GCA | ACA | GGA | GAA | AIA | ATA | GGA | GAT | ATA | |
| 10 | | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | | |
| | Arg | Gln | Ala | His | | | | | | | | | | | | |
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| | (2) | | INF | ORMA! | NOIT | FOR | SEQ | ID I | 1:08 | EE66 | L-3 | | | | | |
| | | | (i) | | SEQU | JENC | E CH | ARAC: | rer i | STIC | 3: | | | | | |
| | | | | | (A) | | | GTH: | 10 | | | | | | | |
| 20 | | | | | (B) | | TYP | | Vuc1 | | | | | | | |
| | | | | | (C) | | | ANDE | | | Sing | le | | | | |
| | | | (ii) | ` | (D) | | | OLOG | | | | | | | | |
| | | | (ii) | | | | | to ge ptide | | | | ١. | | | | |
| | | | (11. | , | (A) | , (1) | | | | | | | ٠. (| Over: | lan | |
| 25 | | | | | (B) | | | GMEN' | | | | | | agmer | - | |
| | | | | | (c) | | | THE? | | | | | | | | |
| | | | (iii | i.) | ORIC | INA | S01 | JRCE: | HI: | 7 | | | | | | |
| | | | | | (E) | | IND | IVIDU | JAL] | SOL | ATE: | | | | | |
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| 30 | | | (iv) |) | IMME | DIA: | וב א | JOICI | : : | | | | | | | |
| 30 | | | | | (C) | | CLO | VE: | | | | | | _ | | |
| 30 | | | (v) | | (C) POSI | TIO | CLOI | VE: GEN(| ME: | | | | | - | | |
| 30 | | | | | (C) POSI | TIO | CLOI | VE: | ME: | | Exp | pres | ses (| | erved | |
| 30 | | | (v) (vi) | • | (C) POSI PROF | TION PERT | CLOI I IN IES (| NE: GENO OF SI | ME: EQUEN | VCE: | Exp | pres | ses (| | erved cminar | ıt |
| 35 | | | (v) | • | (C) POSI PROF | TION PERT | CLOI I IN IES (| VE: GEN(| ME: EQUEN | VCE: | Exp | pres | ses (| | | ıt |
| | | | (v) (vi) | • | (C) POSI PROF | TION PERT | CLOI I IN IES (| NE: GENO OF SI | ME: EQUEN | VCE: | Exp | pres | ses (| | | ıt |
| | SEQ | ID N | (v) (vi) | • | (C) POSI PROF | TION PERT | CLOI I IN IES (| NE: GENO OF SI | ME: EQUEN | VCE: | Exp | pres | ses (| | | ıt |
| | SEQ | ID N | (v) (vi) | ii) | (C) POSI PROF | TION PERT | CLOI I IN IES (| NE: GENO OF SI | ME: EQUEN | VCE: | Exp | pres | ses (| | | it |
| 35 | | ID N | (v) (vi) | ii) | (C) POSI PROF SEQU | TION PERT | CLOI I IN IES (| NE: GENO OF SI | ME: EQUEN | VCE: | Exp | pres | ses (| | | ıt |
| | 1 | | (v) (vi) (vi) |) (i) EE66 | (C) POSI PROF SEQU | TION PERTI | CLOI N IN IES (| NE: GENO OF SI | ME: EQUEN | NCE: | Exp | prese | ses (| dete | rminar 15 | ıt |
| 35 | 1 Cys | Thr | (v) (vi) (vii) | ii) EE66 | (C) POSI PROF SEQU 51-3 | TION PERTI | CLOI I IN IES (E DES | NE: GEN(DF SI GCRII | ME: EQUEN | NCE: | Exp and | press tiger | ses (| Ile | cminar 15 Gly | ıt |
| 35 | 1 Cys | Thr | (v) (vi) (vii) | ii) EE66 | (C) POSI PROF SEQU 51-3 | TION PERTI | CLOI I IN IES (E DES | NE: GEN(DF SI GCRII | ME: EQUEN | NCE: | Exp and | press tiger | ses (| dete | cminar 15 Gly | ıt |
| 35 | 1 Cys | Thr | (v) (vi) (vii) | ii) EE66 | (C) POSI PROF SEQU 51-3 | TION PERTI | CLOI I IN IES (E DES | NE: GEN(DF SI GCRII | ME: EQUEN | NCE: | Exp and | press tiger | ses (| Ile | cminar 15 Gly | it |
| 35 | 1 Cys | Thr | (v) (vi) (vii) | ii) EE66 | (C) POSI PROF SEQU 51-3 5 Asn AAC | TION PERTI | CLOI I IN IES (E DES | NE: GEN(DF SI GCRII | ME: EQUEN | ICE: 1: 10 Lys AAA | Exp and | press tiger | ses (| Ile | 15 Gly GGA | nt |
| 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) NO: Arg AGA | EE66 | (C) POSI PROF SEQU 31-3 5 Asn AAC | PERTI JENCI Asn AAC | CLOI I IN IES (E DES | NE: GEN(DF SE SCRIE Thr ACA | OME: EQUEN | ICE: I: 10 Lys AAA 25 | Exj and Ser AGT | ress tiger | Ses (| Ile ATA | 15 Gly GGA | ıt |
| 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) IO: Arg AGA | EE66 Pro | (C) POSJ PROF SEQU 31-3 5 Asn AAC | PERTI | CLOIN IN IES (E DES Asn AAT | VE: GEN(DF SI SCRII Thr ACA | OME: EQUENTION Arg AGA | ICE: I: 10 Lys AAA 25 Gln | Exj and Ser AGT | Ile ATA | Ses (| Ile ATA | 15 Gly GGA 30 Ile | it |
| 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) IO: Arg AGA | EE66 Pro | (C) POSJ PROF SEQU 31-3 5 Asn AAC | PERTI | CLOIN IN IES (E DES Asn AAT | VE: GEN(DF SI SCRII Thr ACA | OME: EQUENTION Arg AGA | ICE: I: 10 Lys AAA 25 Gln | Exj and Ser AGT | Ile ATA | Ses (| Ile ATA | 15 Gly GGA 30 Ile | ıt |
| 35 40 45 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) IO: Arg AGA | EE66 Pro | (C) POSJ PROF SEQU 31-3 5 Asn AAC | PERTI | CLOIN IN IES (E DES Asn AAT | VE: GEN(DF SI SCRII Thr ACA | OME: EQUENTION Arg AGA | ICE: I: 10 Lys AAA 25 Gln | Exj and Ser AGT | Ile ATA | Ses (| Ile ATA | 15 Gly GGA 30 Ile | nt |
| 35 | 1 Cys TGT | Thr ACA | (v) (vi) (vii) IO: Arg AGA | EE66 Pro | (C) POSJ PROF SEQU 31-3 5 Asn AAC | PERTI | CLOIN IN IES (E DES Asn AAT | VE: GEN(DF SI SCRII Thr ACA | OME: EQUENTION Arg AGA | ICE: I: 10 Lys AAA 25 Gln | Exj and Ser AGT | Ile ATA | Ses (| Ile ATA | 15 Gly GGA 30 Ile | ıt |

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| | Arg AGA | | | | | | | | | | | | | | | |
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| | (2) | | INF | | | UENC | CE CE | ID IARAC | TERI 10 | STIC 5 | | | | | | |
| 10 | | | (ii | ` | (C) | | STR TOP | ANDE OLOG | DNES Y: | S: Line | Sing ar | | | | | |
| 15 | | | (ii | | KIN (A) | D (i | f pe SEQ | | e or E AS | pro SEMB | tein | ETHO | | 0ver | | |
| | | | (ii | i) | | GINA | HYP L SO | GMEN OTHE URCE | TICA : HI | L: V | | erna | 1 Fr | agme | nt | |
| 20 | | | (iv | | (C) | EDIA | TE S | | E: | | | | | | | |
| | | | (v) (vi |) | PRO | PERT | IES | GEN OF S | EQUE | NCE: | Ex | pres | ses | cons | erved rminan | ıt |
| 25 | | | (vi: | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | | | | | | |
| | SEQ I | D N | 10: | EE6 | 53–1 | | · | | | | | | | | | |
| 30 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys I TGT A | Thr .CA | Arg AGA | Pro CCC | Asn AAT | Asn AAC | Asn AAT | Thr ACA | Arg AGA | Lys AAA | Ser AGT | Ile ATA | Thr ACT | Ile ATA | Gly GGA | |
| 35 | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro G CCA G | 1y GG | Arg AGA | Ala GCA | Phe | Tyr TAT | Ala GCA | Thr ACA | G1y GGA | Glu | Ile ATA | Ile ATA | Gly GGA | Asp GAT | Ile | |
| 1 0 | | | | | 35 | | | | | | | | | | | |
| | Arg G AGA C | | | | Сув | | | | | | | | | | | |
| 15 | (2) | | INFO | RMAI | | | | | | TICS | S: | | | | | |

| | | | | | (D) | | TOP | OLOG | Y : | Line | ar | | | | | |
|------------|------|------|-------|------|-------|--------|-------|-------|------------|-------|-------|------------|--------|-------|---------|---|
| | | | (ii |) | KIN | D: c | DNA | to g | enom | ic R | NA | | | | | |
| | | | (ii |) | | | | | | pro | |): | | | | |
| 5 | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY M | ETHO | D: | 0ver | lap | |
| | | | | | (B) | | FRA | GMEN | T TY | PE: | Int | erna | 1 Fr | agme | n t | |
| | | | | | (c) | | | OTHE | | | | | | -B | | |
| | | | (ii | i) | | | | URCE | | | | | | | | |
| | | | \ | _, | (E) | | | | | ISOL | ATF. | | | | | |
| 10 | | | (iv |) | | | | OURC | | 1001 | nil. | _ | | | | |
| | | | (1) | , | (C) | DD III | CLO | | ٠. | | | | | | | |
| | | | (v) | | | TTIO | | | OME . | Wit | hi- | Fore | Cono | _ | | |
| | | | (vi | | | | | | | | | | | | erved | |
| | | | (• 1 | , | I KO. | LENI | IEO | OF S. | EQUE | NCE: | | | | | | _ |
| 15 | | | (| ii) | CEO | HENO | ם ה | COD T | חידרו | NT A | an | tige | nic | aete: | rminan | C |
| | | | (VI. | 11) | 3EQ | UEHVC. | e DE | SCRI | r 1 1 U | 1A : | | | | | | |
| | | | | | | | | | | | | | | | | |
| | SEV. | ID | NO. | EE4 | 63-2 | | | | | | | | | | | |
| | yac | ID I | | EEO | 03-2 | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 1.0 | |
| | | Th- | ۸ | Dro | | ۸ | A | Th | A | 10 | 01 | 71. | Y7.5 - | T1 - | 15 | |
| | TOT | Thr | ALR | 000 | ASII | ASI | AST | Inr | Arg | Lys | GIY | 116 | HIS | TIE | GIY | |
| | 161 | ACA | AGA | CCC | AAC | AAC | AAI | ACA | AGA | AAA | GGT | ATA | CAT | ATA | GGA | |
| 25 | | | | | | | | | | | | | | | | |
| 25 | | | | | 20 | | | | | | | | | | | |
| | | | | | 20 | _ | | | | 25 | | | | | 30 | |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Thr | Thr | Gly | Glu | Ile | Ile | Gly | Asn | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GGA | AAT | ATA | |
| | | | | | | | | | | | | | | | | |
| 30 | | | | | 0.5 | | | | | | | | | | | |
| | | ٥. | | | 35 | | | | | | | | | | | |
| | _ | Gln | | | _ | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | |
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| 35 | (0) | | | | | | | | | | | | | | | |
| | (2) | | |)RMA | | | | | | EE663 | | | | | | |
| | | | (i) | | | JENCE | | | | STICS | S: | | | | | |
| | | | | | (A) | | LEN | | 105 | | | | | | | |
| | | | | | (B) | | TYPE | | | eic A | Acid | | | | | |
| 40 | | | | | (c) | | | NDEI | | | Singl | le | | | | |
| | | | | | (D) | | | | | Lines | | | | | | |
| | | | (ii) | | KINI | e cI | ONA t | o ge | tmons | ic RN | IA | | | | | |
| | | | (ii) |) | KINI |) (if | per | tide | or | prot | ein) |) : | | | | |
| | | | | | (A) | | SEQU | JENCE | E ASS | EMBI | Y ME | THOI |): (|)ver1 | ар | |
| 45 | | | | | (B) | | FRAG | MEN1 | TY | E: | | | | agmen | | |
| | | | | | (C) | | | THET | | | | | | | | |
| | | | (iii | .) | | INAI | | IRCE: | | | | | | | <u></u> | |
| | | | | | (E) | | | | | CSOLA | TE: | | | | | |
| | | | (iv) |) | IMME | DIAT | | URCE | | | | | | | | |
| 5 <i>0</i> | | | | | (C) | | CLON | E: | | | | | | | | |

| | | | (v) (vi | | | | | | OME: EQUE | | Ex | pres | ses | cons | erved | |
|-----|-----|------|------------|---|------------|------|------|------|---------------|------|------|-------|------|-------|-------|-----|
| 5 | | | (vi | ii) | SEQ | UENC | E DE | SCRI | PTIO | N: | an | tige | nic | dete | rmine | int |
| | | | | | | | | | | | | | | | | |
| | SEQ | ID | NO: | EE6 | 63-3 | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| , 0 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | _ | Thr | Arg | Pro | | Asn | Asn | Thr | Ile | - | Ser | Ile | Thr | Ile | Gly | |
| | | | | | | | | | | | | | | ATA | | |
| 15 | | | | | | | | | | | | | | | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1v | Arg | Ala | | Tvr | Ala | Thr | G1v | | Ile | Ile | G1v | Asp | | |
| | | | | | | | | | | | | | | GAT | | |
| 20 | | | | | | | | | | | | | | | | |
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| | Arg | Gln | Ala | His | | | | | | | | | | | | |
| | AGA | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | | |
| | (2) | | INFO | DRMA' | MOTO | FOR | SEO | ו מז | 10: E | TE66 | 5_1 | | | | | |
| | (-/ | | (i) | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | - | | CER IS | | | | | | | |
| | | | | | (A) | | LEN | | 105 | | | | | | | |
| 30 | | | | | (B) | | | | Nucle | | | 1 - | | | | |
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| | | | (ii) |) | | | | | nomi | | | | | | | |
| | | | (ii) |) | | (if | | | or | | | | | | | |
| 35 | | | | | (A) (B) | | | | E ASS | | | | | Over] | - | |
| | | | | | (C) | | | | TYI TICAL | | ince | erna. | rre | agmer | 11 | |
| | | | (iii | .) | | INAI | | | HIV | _ | | | | | | |
| | | | | | (E) | | | | JAL I | SOLA | TE: | | | | | |
| 40 | | | (iv) |) | (C) | DIAI | CLON | | E: | | | | | | | |
| | | | (v) | | | TION | | | ME: | With | in F | inv (| lene | - | | |
| | | • | (vi) |) | | | | | QUEN | | | | | onse | rved | |
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| 45 | | | (vii | .i) | SEQU | ENCE | DES | CRIE | MOIT | T: | | | | | | |
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| | SEQ | ID N | :0 | EE66 | 5-1 | | | | | | | | | | | |
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|-----------------|-----------------|------------|-----------------------------|------------------|--|---|--|---|---|----------------------------------|---------------------|--------------------|-----------|------------|-------------------------------|
| | Сув | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Arg | Ser | Ile | Pro | Ile | G1y |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGA | AGA | AGT | ATA | CCT | ATA | GGA |
| 5 | | | | | | | | | | • | | | | | |
| | | | | | | | | | | | | | | | |
| | _ | | | | 20 | _ | | | | 25 | | | | | 30 |
| | Pro | Gly | Arg | Ala | Phe | Tyr | Ala | Thr | Gly | Gln | I1e | Ile | Gly | Asp | Ile |
| | CCA | GGG | AGA | GCA | TTT | TAT | GCA | ACA | GGA | CAA | ATA | ATA | GGA | GAT | ATA |
| 10 | | | | | | | | | | | | | | | |
| | | | | | 35 | | | | | | | | | | |
| | Ara | G1n | A1 a | His | | | | | | | | | | | |
| | | | | CAT | | | | | | | | | | | |
| 15 | | . | 0011 | 0 | | | | | | | | | | | |
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| | (2) | | INF | ORMA' | TION | FOR | SEQ | ID I | NO: I | EE66. | 5-2 | | | | |
| | , , | | (i) | | | | E CHA | | | | | | | | |
| | | | | | (A) | | LEN | | 10 | | | | | | |
| 20 | | - | | | (B) | | TYPI | E: 1 | Nucle | eic | Acid | | | | |
| | | | | | (C) | | STRA | NDE | DNES | S: : | Sing: | le | | | |
| | | | | | (D) | | TOP | LOG | Y:] | Line | ar | | | | |
| | | | (ii | - | | | DNA 1 | | | | | | | | |
| | | | (ii |) | | D (i | | | | | tein | | | | |
| 25 | | | | | (A) | | | | | | LY MI | | | | |
| | | | | | (B) | | | | TYI | | Inte | ernal | l Fra | agmer | ıt |
| | | | | | (C) | | HYPO | THE: | CICAI | .: | | | | | |
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| | | | (iii | L) | ORIC | | L SOU | JRCE: | IH: | , - | A 7012 a | | | | |
| 00 | | | | | ORIG | GINA | L SOU | IRCE: | HIV | , - | ATE: | | | | |
| 30 | | | (ii: | | ORIG (E) IMMI | GINA | L SOU INDI CE SO | IRCE: IVIDI IURCI | HIV | , - | ATE: | | | | |
| 30 | | | (iv) |) | ORIC (E) IMMI (C) | GINA1 EDIA1 | L SOU INDI TE SO CLON | JRCE: VIDI JURCI IE: | HIV | J ISOL | | | Sene | | |
| 3 <i>0</i> | | | (iv) |) | ORIC (E) IMMI (C) POSI | GINAI EDIAI ITION | L SOU INDI IE SO CLON N IN | IRCE: VIDI URCI IE: GEN(| HIV JAL I | / ISOL | hin H | | | - | erved |
| 30 | | | (iv) |) | ORIC (E) IMMI (C) POSI | GINAI EDIAI ITION | L SOU INDI TE SO CLON | IRCE: VIDI URCI IE: GEN(| HIV JAL I E: OME: | / ISOL | hin Exp | rese | ses o | | erved |
| <i>30</i> 35 | | | (iv) |) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU IND TE SO CLOM IN IES O | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoL | hin Exp | rese | ses o | | erved |
| | | | (iv) (v) (vi) |) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU INDI IE SO CLON N IN | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoL | hin Exp | rese | ses o | | |
| | | | (iv) (v) (vi) |) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU IND TE SO CLOM IN IES O | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoL | hin Exp | rese | ses o | | |
| | SEQ | ID N | (iv) (v) (vi) |) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU IND TE SO CLOM IN IES O | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoL | hin Exp | rese | ses o | | |
| | SEQ | ID N | (iv) (v) (vi) |) (ii) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU IND TE SO CLOM IN IES O | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoL | hin Exp | rese | ses o | | |
| | _ | ID N | (iv) (v) (vi) |) (ii) | ORIC (E) IMMI (C) POSI PROI | GINAI EDIAI ITION PERTI | L SOU IND TE SO CLOM IN IES O | IRCE: OURCI IE: GENO | HIVIAL DAL DAL DAL DAL DAL DAL DAL DAL DAL D | VisoLa With NCE: | hin Exp | rese | ses o | | minant |
| 35 | 1 | | (iv) (v) (vi) (vii |) (i) EE66 | ORIC (E) IMME (C) POSI PROI SEQU | GINAI EDIAI ITION PERTI | L SOU INDI IE SO CLOM IN IES O | JRCE: IVIDI DURCI JE: GEN(DF SI | HIV JAL J E: OME: EQUEN | With NCE: | hin i Exp ant | press Liger | ses d | leter | minant |
| 35 | 1 Cys | Thr | (iv) (v) (vi) (vii) |) Li) EE66 | ORIC (E) IMME (C) POSI PROI SEQU | GINAI EDIAI ITION PERTI JENCE | L SOU INDI IE SO CLOM I IN IES O | VICE: VIDE VICE: GENE OF SE | HIV JAL J E: OME: EQUEN | With NCE: | hin i Exp ant | oress igen | ses dic d | Ile | minant 15 Gly |
| 35 | 1 Cys | Thr | (iv) (v) (vi) (vii) |) Li) EE66 | ORIC (E) IMME (C) POSI PROI SEQU | GINAI EDIAI ITION PERTI JENCE | L SOU INDI IE SO CLOM I IN IES O | VICE: VIDE VICE: GENE OF SE | HIV JAL J E: OME: EQUEN | With NCE: | hin i Exp ant | oress igen | ses dic d | Ile | minant 15 Gly |
| 35 40 | 1 Cys | Thr | (iv) (v) (vi) (vii) |) Li) EE66 | ORIC (E) IMME (C) POSI PROI SEQU | GINAI EDIAI ITION PERTI JENCE | L SOU INDI IE SO CLOM I IN IES O | VICE: VIDE VICE: GENE OF SE | HIV JAL J E: OME: EQUEN | With NCE: | hin i Exp ant | oress igen | ses dic d | Ile | minant 15 Gly |
| 35 | 1 Cys | Thr | (iv) (v) (vi) (vii) |) Li) EE66 | ORIC (E) IMMI (C) POSI PROI SEQU 5-2 | GINAI EDIAI ITION PERTI JENCE | L SOU INDI IE SO CLOM I IN IES O | VICE: VIDE VICE: GENE OF SE | HIV JAL J E: OME: EQUEN | With NCE: 10 Arg | hin i Exp ant | oress igen | ses dic d | Ile | ninant 15 Gly GGA |
| 35 40 | 1 Cys TGT | Thr ACA | (iv) (vi) (vii) HO: Arg | Pro CCC | ORIC (E) IMMI (C) POSI PROI SEQU 55-2 Asn AAC | GINAI EDIAI ITION PERTI JENCE ASN AAC | L SOU IND) IE SO CLOM IN IES O E DES | Thr | E HIV JAL J E: | With NCE: 10 Arg AGA | hin Exp ant | iger lle ATA | Pro | Ile ATA | 15 Gly GGA |
| 35 40 | 1 Cys TGT | Thr ACA | (iv) (vi) (vii) IO: Arg | Pro CCC | ORIC (E) IMMI (C) POSI PROI SEQU 55-2 Asn AAC | EDIATEDIATE ITION PERTI | L SOU INDIFE SO CLON IN IES O | Thr | E HIV JAL J E: ME: EQUEN PTION Arg AGA | With NCE: 10 Arg AGA | hin Expant Ser AGT | Ile ATA | Pro CCT | Ile ATA | 15 Gly GGA 30 Ile |
| 35 40 | 1 Cys TGT | Thr ACA | (iv) (vi) (vii) IO: Arg | Pro CCC | ORIC (E) IMMI (C) POSI PROI SEQU 55-2 Asn AAC | EDIATEDIATE ITION PERTI | L SOU INDIFE SO CLON IN IES O | Thr | E HIV JAL J E: ME: EQUEN PTION Arg AGA | With NCE: 10 Arg AGA | hin Exp ant | Ile ATA | Pro CCT | Ile ATA | 15 Gly GGA 30 Ile |
| 35 40 45 | 1 Cys TGT | Thr ACA | (iv) (vi) (vii) IO: Arg | Pro CCC | ORIC (E) IMMI (C) POSI PROI SEQU 55-2 Asn AAC | EDIATEDIATE ITION PERTI | L SOU INDIFE SO CLON IN IES O | Thr | E HIV JAL D E: | With NCE: 10 Arg AGA | hin Expant Ser AGT | Ile ATA | Pro CCT | Ile ATA | 15 Gly GGA 30 Ile |
| 35 40 | 1 Cys TGT | Thr ACA | (iv) (vi) (vii) IO: Arg | Pro CCC | ORIC (E) IMMI (C) POSI PROI SEQU 55-2 Asn AAC | EDIATEDIATE ITION PERTI | L SOU INDIFE SO CLON IN IES O | Thr | E HIV JAL D E: | With NCE: 10 Arg AGA | hin Expant Ser AGT | Ile ATA | Pro CCT | Ile ATA | 15 Gly GGA 30 Ile |

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|------------|----------|------------|--|
| | Arg Glm | Ala His | Cys |
| | | GCA CAT | |
| 5 | | | |
| | | | |
| | (2) | INFORMAT | ION FOR SEQ ID NO: EE665-3 |
| | | | SEQUENCE CHARACTERISTICS: |
| | | • • | (A) LENGTH: 105 |
| 10 | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | | KIND: cDNA to genomic RNA |
| | | | KIND (if peptide or protein): |
| 15 | | | |
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| | | | |
| | | | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: |
| 20 | | | |
| | | | IMMEDIATE SOURCE: |
| • | | · | (C) CLONE: |
| | | | POSITION IN GENOME: Within Env Gene |
| | | (vi) P | PROPERTIES OF SEQUENCE: Expresses conserved |
| 25 | | (-···) | antigenic determinant |
| 20 | | (viii) S | SEQUENCE DESCRIPTION: |
| | | | |
| | CEC ID | 10 - PECCE | |
| | SEQ ID 1 | NO: EE665 | 0-3 |
| 30 | | | |
| 30 | • | | _ |
| | 1 | | 5 10 15 |
| | Cys Thr | Arg Pro A | asn Asn Asn Thr Arg Arg Ser Ile Pro Ile Gly |
| | TGT ACA | AGA CCC A | AC AAC AAT ACA AGA AGA AGT ATA CCT ATA GGA |
| 0.5 | | | |
| 35 | | | |
| | | | 20 25 30 |
| | Pro Gly | Arg Ala P | he Tyr Ala Thr Gly Gln Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA T | TT TAT GCA ACA GGA CAA ATA ATA GGA GAT ATA |
| | | | |
| 40 | | | |
| | | | 35 |
| | Arg Gln | Ala His C | ys: |
| | AGA CAA | GCA CAT TO | GT |
| | | | |
| 4 5 | | | |
| | (2) | INFORMATIO | ON FOR SEQ ID NO: EE667-1 |
| | • | (i) S1 | EQUENCE CHARACTERISTICS: |
| | | · (A | A) LENGTH: 105 |
| | | | B) TYPE: Nucleic Acid |
| 50 | | | C) STRANDEDNESS: Single |
| | | | |
| | | | |

| | | | (D) TOPOLOGY: Linear |
|----|--------|------------|---|
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 5 | | , , | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | (111) | (E) INDIVIDUAL ISOLATE: |
| 10 | | (iv) | IMMEDIATE SOURCE: |
| | | (21) | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | (/ | antigenic determinant |
| 15 | | (viii) | |
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| | | | · |
| | SEQ ID | NO: EE6 | 67–1 |
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| 20 | | | • |
| | 1 | | 5 10 15 |
| | Cys Th | r Arg Pro | Asn Asn Asn Thr Arg Lys Arg Ile Thr Thr Gly |
| | TGT AC | A AGA CCC | AAC AAC AAT ACA AGA AAA AGA ATA ACT ACG GGA |
| | | | |
| 25 | | | |
| | | | 20 25 30 |
| | Pro G1 | y Arg Val | Tyr Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile |
| | CCG GG | G AGA GTA | TAT TAT ACA ACA GGA GAT ATA ATA GGA GAT ATA |
| | | | |
| 30 | | | |
| | | | 35 |
| | Arg G1 | n Ala His | Cys |
| | AGA CA | A GCA CAT | TGT |
| | | | |
| 35 | > | | |
| | (2) | | TION FOR SEQ ID NO: EE667-2 |
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| | | | (B) TYPE: Nucleic Acid |
| 40 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 45 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 45 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | (!) | (E) INDIVIDUAL ISOLATE: |
| 50 | | (iv) | IMMEDIATE SOURCE: |
| JU | | | (C) CLONE: |

| | | (v) (vi) | POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
|----|-------------------------|--------------------|---|
| 5 | | (viii) | |
| | SEQ ID | NO: EE6 | 67–2 |
| 10 | 1 Cys Thr TGT ACA | Arg Pro AGA CCC | 5 10 15 Ser Asn Asn Thr Arg Lys Ser Ile His Ile Gly AGC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 15 | | | 20 25 30 Phe Tyr Thr Thr Gly Glu Ile Ile Glu Asn Ile TTT TAT ACA ACA GGA GAA ATA ATA GAA AAT ATA |
| 20 | | Ala His GCA CAC | |
| 25 | (2) | INFORMAT | TION FOR SEQ ID NO: EE667-3 SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single |
| 30 | | (ii) (ii) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| 35 | | (iv) | ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene |
| 40 | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant SEQUENCE DESCRIPTION: |
| 45 | SEQ ID N | 10: EE66 | 7–3 |
| 50 | 1 Cys Thr TGC ACA | Arg Pro AGG CCC | 5 10 15 Ser Asn Asn Thr Arg Lys Ser Ile His Ile Ala AGC AAC AAT ACA AGA AAA AGT ATA CAT ATA GCA |

| | | | | | 20 | | | | | 25 | | | | | 30 | |
|------------|------------|------------|-------|-------|-----------|---------|-------|-------|-------|-------|------------|------------|-------|-------|---------|---|
| | Pro | G1y | Arg | Ala | Phe | Tyr | Thr | Thr | G1y | Glu | Ile | Ile | G1u | Asn | Ile | |
| | CCA | GGG | AGA | GCA | TTT | TAT | ACA | ACA | GGA | GAA | ATA | ATA | GAA | AAT | ATA | |
| 5 | | | | | | | | | | | | | | | | |
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| | - | Gln | | | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAC | TGT | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA' | TION | FOR | SEQ | ID 1 | NO: | EE66 | 9-1 | | | | | |
| | | | (i) | | | | | ARAC' | | | | | | | | |
| | | | (-) | | (A) | | | GTH: | 10 | | | | | | | |
| 15 | | | | | (B) | | TYP | | Nucl | - | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | (c) | | | ANDE | | | Sing. | re | | | | |
| | | | | | (D) | | | OLOG | | Line | | | | 1 | | |
| | | | (ii |) | KIN | D: c | DNA · | to g | enom | ic RI | AV | | | | | |
| | | | (ii |) | KIN | D (i: | f pe | ptide | e or | pro | tein |) : | | | | |
| 20 | | | | | (A) | | SEQ | UENC | E AS | SEMB | LY MI | ETHO | D: (| Over | lap | |
| | | | | | (B) | | | GMEN' | | | | | | agmei | | |
| | | | | | (c) | | | OTHE: | | | | | | | | |
| | | | (ii: | :) | | ~ TNIA: | | URCE | | - | | | | | | |
| | | | (11. | 1, | | 3 TIVE | | - | | | A 177772 A | | | | | |
| 25 | | | ,. | | (E) | | | IVID | | 1201 | ATE: | | | | | _ |
| 25 | | | (iv | , | | EDIA | | OURC | E: | | | | | | | |
| | | | | | (C) | | CLO | | | | | | | - | | |
| | | | (v) | | POS: | ITIO | N IN | GEN | OME: | Wit | nin l | Env (| Gene | | | |
| | | | (vi |) | PRO | PERT | IES (| OF SI | EQUE | NCE: | Exp | pres | ses (| cons | erved | |
| | | | | | | | | | | | ani | tige | nic o | dete | rminant | |
| 30 | | | (vi: | ii) | SEQ | JENC | E DE | SCRI | PTIO | V: . | | • | | | | |
| | | | | - | , | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | SEO | ID 1 | ٠0٧ | EE6 | 50_1 | | | | | | | | | | | |
| | DLQ | 10 . | ••• | מבטנ | J | | | | | | | | | | | |
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| 33 | | | | | _ | | | | | | | | | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | Pro | Ile | G1y | |
| | TGT | ACA | AGA | CCT | AAC | AAC | AAT | ACA | AGA | AAA | AGT | ATA | CCT | ATA | GGA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | |
| | | | | | 20 | | | | | 25 | | | | | 30 | |
| | Pro | G1 v | A = a | Δ10 | Ile | Tur | A 1 a | Th. | C1 ** | | T1. | T10 | C1 | A | | |
| | 110 | Gry | TIE | VI G | TIE | TAT | COA | 1111 | GLY | GIU | 116 | 116 | GIY | Asp | 116 | |
| | 004 | 000 | | GUA | WII | INI | GCA | ACA | GGA | GAA | ATA | ATA | GGA | GAT | ATA | |
| | CCA | GGG | AUA | | | | | | | | | | | | | |
| 4- | CCA | GGG | AUA | | | | | | | | | | | | | |
| 45 | CCA | GGG | non | | | | | | | | | | | | | |
| 45 | CCA | GGG | non | | 35 | | | | | | | | | | | |
| 45 | CCA | GGG G1n | | | 35 | | | | | | | | | | | |
| 4 5 | CCA Arg | Gln | Ala | His | 35 Cys | | | | | | | | | | | |
| 4 5 | CCA Arg | | Ala | His | 35 Cys | | | | | | | | | | | |
| 4 5 | CCA Arg | Gln | Ala | His | 35 Cys | | | | | | | | | | | |
| | CCA Arg | Gln | Ala | His | 35 Cys | | | | | | | | | | | |
| | CCA Arg | Gln | Ala | His | 35 Cys | | | | | | | | | | | |

166

| | (2) | INFORMA | ATION FOR SEQ ID NO: EE669-2 |
|----|---------|------------|---|
| | | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 105 |
| 5 | | | (B) TYPE: Nucleic Acid |
| | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 10 | | \ , | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | (111) | (E) INDIVIDUAL ISOLATE: |
| 15 | | (iv) | IMMEDIATE SOURCE: |
| ,, | | (14) | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | | |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| 00 | | (1::) | antigenic determinant |
| 20 | | (viii) | SEQUENCE DESCRIPTION: |
| | | | |
| | 000 70 | | |
| | SEQ ID | NO: EE6 | 69–2 |
| | | | |
| 25 | _ | | |
| | 1 | | 5 10 15 |
| | Cys Thr | Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly |
| | TGT ACA | AGA CCT | AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA |
| | | | |
| 30 | | | |
| | | | 20 25 30 |
| | Pro Gly | Arg Ala | Ile Tyr Ala Thr Gly Glu Ile Ile Gly Asp Ile |
| | CCA GGG | AGA GCA | ATT TAT GCA ACA GGA GAA ATA ATA GGA GAT ATA |
| | | | |
| 35 | | | |
| | | | 35 |
| | Arg Gln | Ala His | Cvs |
| | _ | GCA CAT | |
| | | | |
| 40 | | | |
| | (2) | TNFORMAT | TION FOR SEQ ID NO: EE669-3 |
| | (-) | (i) | SEQUENCE CHARACTERISTICS: |
| | | (1) | (A) LENGTH: 105 |
| | | | |
| 45 | | | (B) TYPE: Nucleic Acid |
| 45 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 50 | | | (B) FRAGMENT TYPE: Internal Fragment |

| | | | (C) HYPOTHETICAL: |
|----|-----------|-----------|---|
| | | (iii) | ORIGINAL SOURCE: HIV |
| | | ` ' | (E) INDIVIDUAL ISOLATE: |
| 5 | | (iv) | IMMEDIATE SOURCE: |
| | | (_,, | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | (+1) | antigenic determinant |
| 10 | | (viii) | SEQUENCE DESCRIPTION: |
| | | (111) | DDQOENOD DDDONII I IONI |
| | | | |
| | SEQ ID NO | 0: EE66 | 69-3 |
| | DDQ 12 14 | 0. 2200 | ,, 3 |
| 15 | | | |
| | 1 | | 5 10 15 |
| | | Ara Pro | Asn Asn Asn Thr Arg Lys Ser Ile Pro Ile Gly |
| | | | AAC AAC AAT ACA AGA AAA AGT ATA CCT ATA GGA |
| | IGI ACA I | NGA CCI | ANC ANC ANT ACA ANA ANA ACT ATA CCT ATA COA |
| 20 | | | |
| | | | 20 25 30 |
| | Pmo Clar | ۸ ۸ ۸ ۱ ۸ | Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asp Ile |
| | | | TTT TAT ACA ACA GGA GAA ATA ATA GGA GAT ATA |
| | CCA GGG A | AGA GCA | III IAI ACA ACA GGA GAA AIA AIA GGA GAI AIA |
| 25 | | | |
| | | | 25 |
| | A 01 - | | 35 |
| | Arg Gln | | |
| | AGA CAA | SUA CAI | 161 |
| 30 | | | |
| 00 | (0) | TITODIA A | ETAN DAD ADO ID NO. EDITATA 1 |
| | | | FION FOR SEQ ID NO: EE1476-1 |
| | 1 | (i) | SEQUENCE CHARACTERISTICS: |
| | | | (A) LENGTH: 102 |
| 35 | | | (B) TYPE: Nucleic Acid |
| 33 | | | (C) STRANDEDNESS: Single |
| | | | (D) TOPOLOGY: Linear |
| | | (ii) | KIND: cDNA to genomic RNA |
| | | (ii) | KIND (if peptide or protein): |
| 40 | | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 40 | | | (B) FRAGMENT TYPE: Internal Fragment |
| | | | (C) HYPOTHETICAL: |
| | (| (iii) | ORIGINAL SOURCE: HIV |
| | | | (E) INDIVIDUAL ISOLATE: |
| 45 | (| (iv) | IMMEDIATE SOURCE: |
| 45 | | | (C) CLONE: |
| | | (v) | POSITION IN GENOME: Within Env Gene |
| | • | (vi) | PROPERTIES OF SEQUENCE: Expresses conserved |
| | | * | antigenic determinant |
| | • | (viii) | SEQUENCE DESCRIPTION: |
| 50 | | | · |

SEQ ID NO: EE1476-1 5 1 5 10 Cys Thr Arg Pro Tyr Asn Asn Ile Lys Ile Arg Ser Ile His Ile TGT ACA AGG CCC TAC AAC AAT ATA AAA ATA AGA AGT ATA CAT ATA 10 20 25 30 Gly Pro Gly Arg Pro Phe Tyr Thr Thr Lys Ile Gly Asp Ile Arg GGA CCA GGG AGA CCA TTT TAT ACA ACA AAA ATA GGA GAT ATA AGA 15 35 Gln Ala Tyr Cys CAA GCA TAT TGT 20 (2) INFORMATION FOR SEQ ID NO: EE3032-1 (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 (B) TYPE: Nucleic Acid (C) STRANDEDNESS: Single 25 (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA (ii) (ii) KIND (if peptide or protein): SEQUENCE ASSEMBLY METHOD: Overlap (A) (B) FRAGMENT TYPE: Internal Fragment 30 (C) HYPOTHETICAL: (iii) ORIGINAL SOURCE: HIV INDIVIDUAL ISOLATE: (iv) IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene (v) PROPERTIES OF SEQUENCE: Expresses conserved (vi) antigenic determinant (viii) SEQUENCE DESCRIPTION: 40 SEQ ID NO: EE3032-1

1 5 10 15
Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly
TGT ACA AGG CCC AAT AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA

20 25 30
Pro Gly Arg Ala Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile
CCA GGG AGG GCA TTT TAT ACA ACA GGA GAC ATA ATA GGA GAT ATA

| | | | | | . 35 | | | | | | | | | | | |
|----|-----|------|----------|----------------|--------------------|----------|-------|--------|-----------|-----------|-------|-------|-------------|---------|----------------|------|
| | Arg | G1n | Ala | His | Cys | | | | | | | | | | | |
| | | | | CAT | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA? | CION | FOR | SEO | ID 1 | NO: 1 | EE303 | 32-2 | | | | | |
| | (-) | | (i) | | | | | | TER I | | | | | | | |
| | | | (-) | | (A) | | | GTH: | | | | | | | | |
| 10 | | | | | (B) | | | | Nucle | | Acid | | | | | |
| | | | | | (c) | | | | DNES | | Singl | le | | | | |
| | | | | | (D) | | | | Y: 1 | | _ | | | | | |
| | | | (ii) |) | | | | | enom | | | | | | | |
| | | | (ii) | | | | | | or | | |) : | | | | |
| 15 | | | (| , | (A) | , , | | | | | | |): (|)ver1 | an | |
| • | | | | | (B) | | - | | r TY | | | | | gmer | - | |
| | | | | | (c) | | | | TICA | | | , | | -6 | | |
| | | | (ii: | ;) | | TNA | | | HIV | _ | | | | | | |
| | | | (11. | - / | (E) | 3 111212 | | | JAL | | TE. | | | | | |
| 20 | | | (iv) | ` | | znta' | TE SO | | | LDOIL | 110. | | | | | |
| 20 | | | (10. | , | (C) | | CLO | | • | | | | | | | |
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| | | | (v) | | | | | | | | | | | | | |
| | | | (vi | , | PKUI | EKI. | IES (| Jr SI | cQue | VCE: | | | | | erved cmina | -+ |
| 05 | | | (| | CEO | TENIO | e ne | וד ממכ | וחדדח | AT . | anı | riger | 110 (| ie ce i | штиа | II C |
| 25 | | | (vi: | 11) | SEQ |) ETAC | c DE: | OCKII | PTIO | ν. | | | | | | |
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| | CEO | TD I | | EE3/ | 120 (| 2 | | | | | | | | | | |
| | SEQ | ו עו | NO: | EE30 | J32 - , | 2 | | | | | | | | | | |
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| 30 | , | | | | • | | | | | 10 | | | | | 15 | |
| | 1 | ATT | A | 7 0 – – | 5 | A | A | TT | A | 10 | 01 | T1. | W | MET | | |
| | | | | Pro | | | | | | | | | | | | |
| | 161 | ACA | AGG | CCC | AAI | AAC | WAI | ACA | AGA | AAA | GGI | AIA | CAI | AIG | GGA | |
| | | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | 0.5 | | | | | 20 | |
| | _ | | | | _ 20 | • | | - | 61 | 25 | | ~ 1 | ~1 . | | 30 | |
| | | | | Ala | | | | | | | | | | | | |
| | CCA | GGG | AGG | GCA | TTT | TAT | ACA | ACA | GGA | GAC | ATA | ATA | GGA | GAT | ATA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | |
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| | | | | His | | | | | | | | | | | • | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | |
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| 45 | | | | | | | | | | | | | | | | |
| | (2) | | | ORMA: | | | | | | | | | | | | |
| | | | (i) | | | UENC | | | TERI | | S: | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | _ | | | | | | |
| | | | | | (B) | | TYP | E:] | Nucl | eic A | Acid | | | | | |
| 50 | | | | | (C) | | STR | ANDE | DNES | S: : | Sing | le | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

| 5 | (ii) (ii) (iii) (iv) (v) (vi) | (D) TOPOLOGY: Linear KIND: cDNA to genomic RNA KIND (if peptide or protein): (A) SEQUENCE ASSEMBLY METHOD: Overlap (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: ORIGINAL SOURCE: HIV (E) INDIVIDUAL ISOLATE: IMMEDIATE SOURCE: (C) CLONE: POSITION IN GENOME: Within Env Gene PROPERTIES OF SEQUENCE: Expresses conserved antigenic determinant |
|----|--|---|
| 15 | (viii) | SEQUENCE DESCRIPTION: |
| | SEQ ID NO: EE3 | 032–3 |
| 20 | 1 | 5 10 15 |
| | Cys Thr Arg Pro | Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly |
| | TGT ACA AGG CCC | AAT AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA |
| 25 | | 20 25 30 |
| | Pro Gly Arg Ala | Phe Tyr Thr Thr Gly Asp Ile Ile Gly Asp Ile |
| | CCA GGG AGG GCA | TTT TAT ACA ACA GGA GAC ATA ATA GGA GAT ATA |
| 30 | | 35 |
| | Arg Gln Ala His | |
| | AGA CAA GCA CAT | igi |
| 35 | | TION FOR SEQ ID NO: EEE6405-1 |
| | (i) | SEQUENCE CHARACTERISTICS: |
| | | (A) LENGTH: 105 (B) TYPE: Nucleic Acid |
| | | (C) STRANDEDNESS: Single |
| 40 | (ii) | (D) TOPOLOGY: Linear |
| | (ii) | KIND: cDNA to genomic RNA KIND (if peptide or protein): |
| | | (A) SEQUENCE ASSEMBLY METHOD: Overlap |
| 45 | | (B) FRAGMENT TYPE: Internal Fragment (C) HYPOTHETICAL: |
| | (iii) | ORIGINAL SOURCE: HIV |
| | | (E) INDIVIDUAL ISOLATE: |
| | (iv) | IMMEDIATE SOURCE: (C) CLONE: |
| 50 | (v) | POSITION IN GENOME: Within Env Gene |

| | | | | | 20 |) | | | | 25 | • | | | | 30 | |
|----|-----|------|-------|------------|------------|-------|------|-------|-------|------|-------|-------|-------|------|-------|----|
| | Pro | G1 y | Arg | , Ala | Phe | Ту | Ala | Thr | Gly | Glu | ı Ile | MET | Gly | Asp | Ile | |
| | CCA | GGG | AGA | GCA | TTI | ' TAT | GCA | ACA | GGA | GAA | ATA | ATG | GGA | GA7 | ATA | |
| 5 | | | | | | | | | | | | | | | | |
| • | | | | | 25 | | | | | | | | | | | |
| | ۸ | C1- | . 41- | 17:- | 35 | | | | | | | | | | | |
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| | nun | CAA | GUE | CAI | 161 | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |
| | (2) | | INF | ORMA | TION | FOR | SEQ | ID | NO: | EE64 | 05-3 | | | | | |
| | | | (i) | | | | | ARAC | | | | | | | | |
| | | | | | (A) | | LEN | GTH: | 10 | 5 | | | | | | |
| 15 | | | | | (B) | | TYP | E: | Nuc1 | eic | Acid | | | | | |
| 15 | | | • | | (C) | | STR | ANDE | DNES | S: | Sing | 1e | | | | |
| | | | | | (D) | | | OLOG | | Line | | | | | | |
| | | | (ii | - | | | | to g | | | | | | | | |
| | · · | | (ii |) | KIN | D (i | | | | | tein | | _ | _ | _ | |
| 20 | | | | | (A) (B) | | | GMEN | | | LY M | | | 0ver | _ | |
| | | | | | (C) | | | OTHE | | | int | erna | ı rr | agme | nt | |
| | | | (ii | i) | | | | URCE | | | | | | | | |
| | | | (| -, | (E) | | | IVID | | | ATE: | | | | | |
| | | | (iv |) | | EDIA | | OURC | | | | | | | | |
| 25 | | | | | (C) | | CLO | | | | | | | | | |
| | | | (v) | | | | | | | | hin : | Env (| Gene | _ | | |
| | | | (vi |) | PRO: | PERT | IES | OF S | EQUE | MCE: | Ex | pres | ses (| cons | erved | |
| | | | | | ~-~ | | | | | | an | tige | nic (| dete | rmina | nt |
| 30 | | | (V1 | ii) | SEQ | UENC | E DE | SCRI | LT TO | N : | | | | | | |
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| | SEO | ID I | NO: | EE64 | 405- | 3 | | | | | | | | | | |
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| 35 | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| | Cys | Thr | Arg | Pro | Asn | Asn | Asn | Thr | Arg | Lys | Ser | Ile | Pro | Ile | Gly | |
| | TGT | ACA | AGA | CCC | AAC | AAC | AAT | ACA | AGG | AAA | AGT | ATA | CCT | ATA | GGA | |
| | | | | | | | | | | | | | | | | |
| 40 | | | | | 20 | | | | | | | • | | | | |
| | Pro | Aro | Ara | Δ1a | | Tur | ۸1۵ | Th- | C1 | 25 | T1. | 71. | O1 | | 30 | |
| | CCA | AGG | AGA | Ala GCA | TTT | TAT | GCA | ACA | CCA | Web | ATA | TIE | GLA | ASP | TIE | |
| | • | | | | | ~* | | ***** | CON | ON | TIV | UTW | GGM | GMI | WIW | |
| | | | | | | | | | | | | | | | | |
| 45 | | | | | 35 | | | | | | | | | | | |
| | | | | His | | | | | | | | | | | | |
| | AGA | CAA | GCA | CAT | TGT | | | | | | | | | | | |
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| | (2) | INFORMATION FOR SEQ ID NO: EE6636-1 (i) SEQUENCE CHARACTERISTICS: | |
|----|--|---|--|
| | | (i) SEQUENCE CHARACTERISTICS: (A) LENGTH: 105 | |
| 5 | | (B) TYPE: Nucleic Acid | |
| | | (C) STRANDEDNESS: Single | |
| | | (D) TOPOLOGY: Linear | |
| | | (ii) KIND: cDNA to genomic RNA | |
| | | (ii) KIND (if peptide or protein): | |
| 10 | | (A) SEQUENCE ASSEMBLY METHOD: Overlap | |
| | | (B) FRAGMENT TYPE: Internal Fragment | |
| | | (C) HYPOTHETICAL: | |
| | | (iii) ORIGINAL SOURCE: HIV | |
| | | (E) INDIVIDUAL ISOLATE: | |
| 15 | | (iv) IMMEDIATE SOURCE: | |
| | | (C) CLONE: | |
| | | (v) POSITION IN GENOME: Within Env Gene | |
| | | (vi) PROPERTIES OF SEQUENCE: Expresses conserved | |
| | | antigenic determinant | |
| 20 | | (viii) SEQUENCE DESCRIPTION: | |
| | | | |
| | CEO ID | NO. FEC. 26 1 | |
| | SEQ ID | NO: EE6636-1 | |
| 25 | | | |
| | 1 | 5 10 15 | |
| | —————————————————————————————————————— | Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly | |
| | TGT ACA | AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA | |
| | | | |
| 30 | | | |
| | • | 20 25 30 | |
| | Pro Gly | Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asn Ile | |
| | CCA GGG | AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA AAT ATA | |
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| | - | Ala His Cys | |
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| 40 | (2) | INFORMATION FOR CEO ID NO. PROCESS R | |
| | (2) | INFORMATION FOR SEQ ID NO: EE6636-2 (i) SEQUENCE CHARACTERISTICS: | |
| | | (A) LENGTH: 105 | |
| | | (B) TYPE: Nucleic Acid | |
| 45 | | (C) STRANDEDNESS: Single | |
| | | (D) TOPOLOGY: Linear | |
| | | (ii) KIND: cDNA to genomic RNA | |
| | | (ii) KIND (if peptide or protein): | |
| | | (A) SEQUENCE ASSEMBLY METHOD: Overlap | |
| 50 | | (B) FRAGMENT TYPE: Internal Fragment | |
| | | | |

| | | | | | (c) | | HYP | OTHE | TICA | L: | | | | | | |
|----|-----|------|------|-------|------|-------|-------|-------|-------|----------------|-------|-----|------|------------|-----------------|-----|
| | | | (ii | i) | | GINA | | URCE | | _ | | | | | | |
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Cys Thr Arg Pro Asn Asn Asn Thr Arg Lys Ser Ile His Ile Gly
TGT ACA AGA CCC AAC AAC AAT ACA AGA AAA AGT ATA CAT ATA GGA

20 25

Pro Gly Arg Ala Phe Tyr Thr Thr Gly Glu Ile Ile Gly Asn Ile CCA GGG AGA GCA TTT TAT ACA ACA GGA GAA ATA ATA GGA AAT ATA

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Arg Gln Ala His Cys AGA CAA GCA CAT TGT

Claims

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 An antigenic conjugate of HIV major neutralization determinant covalently linked to purified outer membrane proteosome of Neisseria, comprising an antigenic conjugate of the formula

 $(PND)_n \sim (Omp),$

or pharmaceutically acceptable salt thereof, wherein:

PND is the major neutralization determinant of HIV, which is a polypeptide of one or more amino acid sequences;

- n indicates the number of polypeptides of PND covalently linked to Omp and is 1-50;
- indicates covalent linkage;

Omp is purified outer membrane proteosome of Neisseria,

said polypeptide having a sequence of 35 amino acids or less, but at least 5 amino acids in length; said polypeptide containing in its sequence Gly-X-Gly, wherein X is proline, leucine, alanine, glutamine or serine;

said polypeptide having any of the sequences given in the sequence listing with the exception of sequence nos. EE90-1, EE90-2, EE90-3, EE312-1, EE360-1, EE360-2, EE360-3, EE667-3 and EE6405-3.

2. The antigenic conjugate of claim 1 wherein X is proline.

- 3. The antigenic conjugate of claim 1 wherein the covalent linkage between PND and Omp consists essentially of a bigeneric spacer.
- 4. The antigenic conjugate of claims 1-3, in combination with any of the antivirals, immunomodulators, anti-infectives or vaccines of Table I.
- 5. The antigenic conjugate of claims 1-3, wherein said Omp is derived from Neisseria meningitidis.
- 6. A cocktail of antigenic conjugates consisting essentially of a mixture of more than one molecular species of the antigenic conjugates of claims 1-3.
- 7. An AIDS vaccine comprising an antigenic conjugate of HIV major neutralization determinant covalently linked to purified outer membrane proteosome of Neisseria, said conjugate of the formula

 $(PND)_n \sim (Omp),$

or pharmaceutically acceptable salt thereof, wherein:

PND is the major neutralization determinant of HIV, which is a polypeptide of one or more amino acid sequences;

- n indicates the number of polypeptides of PND covalently linked to Omp and is 1-50;
- indicates covalent linkage;

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Omp is purified outer membrane proteosome of Neisseria;

said polypeptide having a sequence of 35 amino acids or less, but at least 5 amino acids in length; said polypeptide containing in its sequence Gly-X-Gly, wherein X is proline, leucine, alanine, glutamine or serine;

said polypeptide having any of the sequences given in the sequence listing;

said conjugate mixed with a suitable immunological adjuvant, carrier or vector, said vaccine to be used pre- and post-exposure to prevent or treat HIV infection or disease, said vaccine capable of eliciting specific HIV neutralizing antibodies.

- 15 8. The AIDS vaccine of claim 7 wherein X is proline.
 - The AIDS vaccine of claim 7 wherein the covalent linkage betwen PND and Omp consists essentially of a bigeneric spacer.
- 20 10. The AIDS vaccine of claims 7-9 in combination with any of the antivirals, immunomodulators, antiinfectives or vaccines of Table I.
 - 11. The AIDS vaccine of claims 7-9, wherein said Omp is derived from Neisseria meningitidis.
- 25 12. The AIDS vaccine of claism 7-9 comprising a cocktail of said antigenic conjugates, said cocktail consisting essentially of a mixture of more than one molecular species of said antigenic conjugates.
 - 13. A pharmaceutical composition comprising an antigenic conjugate of HIV major neutralization determinant covalently linked to purified outer membrane proteosome of Neisseria, said antigenic conjugate of the formula

(PND)n~(Omp),

or pharmaceutically acceptable salt thereof, wherein:

- PND is the major neutralization determinant of HIV, which is a polypeptide of one or more amino acid sequences;
- n indicates the number of polupeptides of PND covalently linked to Omp and is 1-50;
- indicates covalent linkage;
- Omp is purified outer membrane proteosome of Neisseria,

said polypeptide having a sequence of 35 amino acids or less, but at least 5 amino acids in length; said polypeptide containing in its sequence Gly-X-Gly, wherein X is proline, leucine, alanine, glutamine or serine;

said polypeptide having any of the sequences given in the sequence listing;

said conjugate mixed with a suitable immunological adjuvant, said composition useful as a vaccine capable of producing specific HIV neutralizing antibody in mammals.

- 14. The composition of claim 13 wherein X is proline.
- 15. The composition of claim 13 wherein the covalent linkage between PND and Omp consists essentiallyof a bigeneric spacer.
 - 16. The composition of claims 13-15, in combination with any of the antivirals, immunomodulators, antiinfectives or vaccines of Table I.
- 55 17. The composition of claims 13-15, wherein said Omp is derived from Neisseria meningitidis.
 - 18. A pharmaceutical composition containing a cocktail of antigenic conjugates consisting essentially of a mixture of more than one molecular species of the antigenic conjugates of claims 13-15.

- 19. The use of a conjugate as claimed in claim 1 for the preparation of a medicament for vaccinating against AIDS or ARC.
- 20. The use of a conjugate as claimed in claim 2 for the preparation of a medicament for vaccinating against AIDS or ARC.
 - 21. The use of a conjugate as claimed in claim 3 for the preparation of a medicament for vaccinating against AIDS or ARC.
- 22. The use of a conjugate as claimed in claim 1 together with any of the antivirals, immunolodulators or anti-infectives of Table I for the preparation of a medicament for vaccinating against AIDS or ARC.
 - 23. The use as claimed in claim 19 or 20 wherein the Omp is derived from Neisseria meningitidis.
- 24. The use of a conjugate as claimed in claim 1 for the preparation of a medicament for the prevention or treatment of infection by HIV, or for the treatment of AIDS.
 - 25. The use of a conjugate as claimed in claim 2 for the preparation of a medicament for the prevention or treatment of infection by HIV, or for the treatment of AIDS.
 - 26. The use of a conjugate as claimed in claim 3 for the preparation of a medicament for the prevention or treatment of infection by HIV, or for the treatment of AIDS.
- 27. The use of a conjugate as claimed in claim 1 together with any of the antivirals, immunolodulators or anti-infectives of Table I for the preparation of a medicament for the prevention or treatment of infection by HIV, or for the treatment of AIDS.
 - 28. The use as claimed in claim 24 or 25 wherein the Omp is derived from Neisseria meningitidis.

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Date of deferred publication of the search report: 12.05.93 Bulletin 93/19 7) Applicant: MERCK & CO. INC. 126, East Lincoln Avenue P.O. Box 2000 Rahway New Jersey 07065-0900(US)

Inventor: Lewis, John A. 1229 Clearbrook Road West Chester, PA 19380(US) Inventor: Davide, Joseph P. 471 Wexford Circle Harleysville, PA 19438(US) Inventor: Waterbury, Julie ANN 2610 Skippack Pike, Apt. 1, RD 3 Norristown, PA 19403(US)

Representative: Barrett-Major, Julie Diane et al Merck & Co., Inc. European Patent Department Terlings Park Eastwick Road Harlow Essex CM20 2QR (GB)

New embodiments of the HIV principal neutralizing determinant.

© New amino acid sequences of an envelope fragment of HIV are disclosed, as well as im – munological conjugates for immunological purposes, including vaccination against AIDS.



EUROPEAN SEARCH REPORT

Application Number

EP 91 20 2025 Page 1

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| | DOCUMENTS CONS | | | |
| Category | Citation of document with i | ndication, where appropriate, | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| Y | EP-A-0 311 219 (STI DIERGENEESKUNDIG IN * the whole documen *especially column | CHTING CENTRAAL ISTITUUT) it * | 1-28 | C07K17/02 C07K7/10 A61K37/02 A61K39/385 A61K39/21 |
| Y | WO-A-9 003 984 (REP * the whole documen * especially page 2 | it * | 1-28 | A61K47/48 |
| Y | EP-A-O 339 504 (E.I COMPANY) * the whole documen | DU PONT DE NEMOURS AND | 1-28 | |
| D,Y | EP-A-0 161 188 (MER * the whole documen | | 1-28 | |
| Y | EP-A-0 186 576 (MER * the whole documen | | 1-28 | |
| Y | OF THE HUMAN IMMUNO (HIV-1)' * the whole documen | RE 1990, OXFORD,UK RONTING THE AN IMMUNODOMINANT VIRUS NEUTRALIZING ENVELOPE GLYCOPROTEIN DEFICIENCY VIRUS TYPE 1 t * | 1-28 | TECHNICAL FIELDS SEARCHED (Int. Cl.5) CO7K A61K |
| Y | EP-A-0 290 893 (GEN CORPORATION) * the whole documen | | 1-28 | |
| 1 | The present search report has b | een drawn up for all claims | | |
| | Place of search THE HAGUE | Date of completion of the search 21 DECEMBER 1992 | | Examine SITCH W.D.C. |
| X : part Y : part doct A : tech O : non | CATEGORY OF CITED DOCUME ticularly relevant if taken alone ticularly relevant if combined with an ument of the same category inological backgroundwritten disclosure rmediate document | NTS T: theory or principl E: earlier patent do after the filing di | ument, but pub ite in the application or other reasons | e invention lished on, or |



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| | | DERED TO BE RELEVAN | T | | | |
| Category | Citation of document with i of relevant pa | ndication, where appropriate, | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) | | |
| 1 | DATABASE WPIL Section Ch, Week 90 Derwent Publication Class B04, AN 90-22 & JP-A-2 157 294 (N June 1990 * abstract * | s Ĺtd., London, GB; 8714 | 1-28 | · | | |
| | pages 6768 – 6772 JAVAHERIAN ET AL 'PI | 89, WASHINGTON D.C.,USA RINCIPAL NEUTRALIZING IMMUNODEFICIENCY VIRUS FEIN' | 1-28 | | | |
|),P, | EP-A-0 402 088 (MERC | CK AND CO.INC.) | 1-28 | | | |
| , | * the whole document | * | | | | |
| | | | | TECHNICAL FIELDS SEARCHED (int. Cl.5) | | |
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| | The present search report has bee | n drawn up for all claims | | | | |
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| TH | E HAGUE | 21 DECEMBER 1992 | S | SITCH W.D.C. | | |
| X : partice Y : partice docum A : techno O : non-w | TEGORY OF CITED DOCUMENT plarly relevant if taken alone plarly relevant if combined with anoth ent of the same category plogical background ritten disclosure ediate document | E: earlier patent docu after the filing dat er D: document cited in L: document cited for | T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons A: member of the same patent family, corresponding | | | |

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